

SEQUENCE LISTING

<110> NatImmune A/S
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 Jensenius, Jens Christian
 Kongerslev, Leif
 Matthiesen, Finn

<120> Treatment of SARS in individuals

≥130> P 774 US00

<140> PCT/DK 04/000266

<141> 2004-04-08

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<170> PatentIn version 3.1

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Gly Thr Ala Cys Tyr Thr Ala His Ser Gly Lys Leu Ser Ala Ala Glu 35 40 45

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Ser Lys Glu Glu Ala Gln His Val Gln Arg Val Leu Ala Gln Leu Leu 65 70 75 80

Arg Arg Glu Ala Ala Leu Thr Ala Arg Met Ser Lys Phe Trp Ile Gly 85 90 95

Leu Gln Arg Glu Lys Gly Lys Cys Leu Asp Pro Ser Leu Pro Leu Lys
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Gly Phe Ser Trp Val Gly Gly Glu Asp Thr Pro Tyr Ser Asn Trp 115 120 125

| His | Lys 130 | Glu | Leu | Arg | Asn | Ser 135 | Cys | Ile | Ser | Lys | Arg 140 | Cys | Val | Ser | Leu |
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| Ser | Glu | Gly | Pro | Cys 165 | Gly | Ser | Pro | Gly | Ser 170 | Pro | Gly | Ser | Asn | Ile 175 | Glu |
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| Cys 225 | Gly | Glu | Gly | Asp | Lys 230 | Asp | Glu | Thr | Gln | Ser 235 | His | Tyr | Phe | Leu | Cys 240 |
| Lys | Glu | Lys | Ala | Pro 245 | Asp | Val | Phe | Asp | Trp 250 | Gly | Ser | Ser | Gly | Pro 255 | Leu |
| Cys | Val | Ser | Pro 260 | Lys | Tyr | Gly | Cys | Asn 265 | Phe | Asn | Asn | Gly | Gly 270 | Cys | His |
| Gln | Asp | Cys 275 | Phe | Glu | Gly | Gly | Asp 280 | Gly | Ser | Phe | Leu | Cys 285 | Gly | Cys | Arg |
| Pro | Gly 290 | Phe | Arg | Leu | Leu | Asp 295 | Asp | Leu | Val | Thr | Cys 300 | Ala | Ser | Arg | Asn |
| Pro 305 | Cys | Ser | Ser | Ser | Pro 310 | Cys | Arg | Gly | Gly | Ala 315 | Thr | Cys | Val | Leu | Gly 320 |
| Pro | His | Gly | Lys | Asn 325 | Tyr | Thr | Cys | Arg | Cys 330 | Pro | Gln | Gly | Tyr | Gln 335 | Leu |
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| Cys | Trp 370 | Val | Gly | Tyr | Glu | Pro 375 | Gly | Gly | Pro | Gly | Glu 380 | Gly | Ala | Cys | Gln |
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140

135

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| Leu | Asn 210 | Leu | Thr | Gln | Val | Gln 215 | Gln | Arg | Asn | Leu | Ile 220 | Ser | Asn | Leu | Gln |
| Gln 225 | Ser | Val | Asp | Asp | Thr 230 | Ser | Leu | Ala | Ile | Gln 235 | Arg | Ile | Lys | Asn | Asp 240 |
| Phe | Gln | Asn | Leu | Gln 245 | Gln | Val | Phe | Leu | Gln 250 | Ala | Lys | Lys | Asp | Thr 255 | Asp |
| Trp | Leu | Lys | Glu 260 | Lys | Val | Gln | Ser | Leu 265 | Gln | Thr | Leu | Ala | Ala 270 | Asn | Asn |
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| Gln | Leu 290 | Ser | Ser | Phe | Thr | Gly 295 | Gln | Met | Asp | Asn | Ile 300 | Thr | Thr | Ile | Ser |
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| Thr | Ala | His 355 | His | Leu | Arg | Thr | Leu 360 | Thr | Ser | Asn | Leu | Asn 365 | Asp | Val | Arg |
| Thr | Thr | Cys | Thr | Asp | Thr | Leu | Thr | Arg | His | Thr | Asp | Asp | Leu | Thr | Ser · |

370 375 380

| Leu 385 | Asn | Asn | Thr | Leu | Val 390 | Asn | Ile | Arg | Leu | Asp 395 | Ser | Ile | Ser | Leu | Arg 400 |
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| Gln | Leu | Ile 435 | Lys | Asn | Phe | Thr | Ile 440 | Leu | Gln | Gly | Pro | Pro 445 | Gly | Pro | Arg |
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| Lys | Gly | Pro | Pro 580 | Gly | Pro | Pro | Gly | Pro 585 | Ser | Gly | Ala | Met | Glu 590 | Pro | Leu |
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Pro His Trp Lys Asn Phe Thr Asp Lys Cys Tyr Tyr Phe Ser Leu Glu 610 615 Lys Glu Ile Phe Glu Asp Ala Lys Leu Phe Cys Glu Asp Lys Ser Ser 635 630 625 His Leu Val Phe Ile Asn Ser Arg Glu Glu Gln Trp Ile Lys Lys 650 655 645 His Thr Val Gly Arg Glu Ser His Trp Ile Gly Leu Thr Asp Ser Glu 665 670 Gln Glu Ser Glu Trp Lys Trp Leu Asp Gly Ser Pro Val Asp Tyr Lys 675 680 685 Asn Trp Lys Ala Gly Gln Pro Asp Asn Trp Gly Ser Gly His Gly Pro 700 690 Gly Glu Asp Cys Ala Gly Leu Ile Tyr Ala Gly Gln Trp Asn Asp Phe 710 715 705 Gln Cys Asp Glu Ile Asn Asn Phe Ile Cys Glu Lys Glu Arg Glu Ala 730 Val Pro Ser Ser Ile Leu 740 <210> 3 <211> 371 <212> PRT <213> Bos taurus <400> 3 Met Leu Leu Pro Leu Ser Val Leu Leu Leu Thr Gln Pro Trp 5 Arg Ser Leu Gly Ala Glu Met Lys Ile Tyr Ser Gln Lys Thr Leu Ala 25 20 Asn Gly Cys Thr Leu Val Val Cys Arg Pro Pro Glu Gly Gly Leu Pro 40 35 Gly Arg Asp Gly Gln Asp Gly Arg Glu Gly Pro Gln Gly Glu Lys Gly 55 50

| • | D | G1 | a | D | a 1 | Dana | 77- | a1 | 7 ~~~ | . ה ד ת | 61. , | 7~~ | D~0 | C111 | Dro |
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| Ala | Gly | Pro | Ile | Gly 85 | Pro | Lys | Gly | Asp | Asn 90 | Gly | Ser | Ala | Gly | Glu 95 | Pro |
| Gly | Pro | Lys | Gly 100 | Asp | Thr | Gly | Pro | Pro 105 | Gly | Pro | Pro | Gly | Met 110 | Pro | Gly |
| Pro | Ala | Gly 115 | Arg | Glu | Gly | Pro | Ser 120 | Gly | Lys | Gln | Gly | Ser 125 | Met | Gly | Pro |
| Pro | Gly 130 | Thr | Pro | Gly | Pro | Lys 135 | Gly | Asp | Thr | Gly | Pro 140 | Lys | Gly | Gly | Met |
| Gly 145 | Ala | Pro | Gly | Met | Gln 150 | Gly ' | Ser | Pro | Gly | Pro 155 | Ala | Gly | Leu | Lys | Gly 160 |
| | | _ | | 165 | | | | | 170 | | | | Ala | 175 | |
| Ala | Gly | Pro | Ala 180 | Gly | Ala | Ile | Gly | Pro 185 | Gln | Gly | Pro | Ser | Gly 190 | Ala | Arg |
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| 225 | | | | | 230 | | | | | 235 | | | Ala | | 240 |
| | _ | | | 245 | | | | | 250 | | | | Val | 255 | |
| - | | | 260 | | | | | 265 | | | | | Asp 270 | | |
| Gln | Leu | Cys | Arg | Glu | Ala | Lys | Gly | Gln | Leu | Ala | Ser | Pro | Arg | Ser | Ala |

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105

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| Gly 145 | Ala | Pro | Gly | Met | Gln 150 | Gly | Ser | Pro | Gly | Pro 155 | Ala | Gly | Leu | Lys | Gly 160 |
| Glu | Arg | Gly | Ala | Pro 165 | Gly | Glu | Leu | Gly | Ala 170 | Pro | Gly | Ser | Ala | Gly 175 | Val |
| Ala | Gly | Pro | Ala 180 | Gly | Ala | Ile | Gly | Pro 185 | Gln | Gly | Pro | Ser | Gly 190 | Ala | Arg |
| Gly | Pro | Pro 195 | Gly | Leu | Lys | Gly | Asp 200 | Arg | Gly | Asp | Pro | Gly 205 | Glu | Arg | Gly |
| Ala | Lys 210 | Gly | Glu | Ser | Gly | Leu 215 | Ala | Asp | Val | Asn | Ala 220 | Leu | Lys | Gln | Arg |
| Val 225 | Thr | Ile | Leu | Glu | Gly 230 | Gln | Leu | Gln | Arg | Leu 235 | Gln | Asn | Ala | Phe | Ser 240 |
| Arg | Tyr | Lys | Lys | Ala 245 | Val | Leu | Phe | Pro | Asp 250 | Gly | Gln. | Ala | Val | Gly 255 | Lys |
| Lys | Ile | Phe | Lys 260 | Thr | Ala | Gly | Ala | Val 265 | Lys | Ser | Tyr | Ser | Asp 270 | Ala | Gln |
| Gln | Leu | Cys 275 | Arg | Glu | Ala | Lys | Gly 280 | Gln | Leu | Ala | Ser | Pro 285 | Arg | Ser | Ala |
| Ala | Glu 290 | Asn | Glu | Ala | Val | Ala 295 | Gln | Leu | Val | Arg | Ala 300 | Lys | Asn | Asn | Asp |
| Ala 305 | Phe | Leu | Ser | Met | Asn 310 | Asp | Ile | Ser | Thr | Glu 315 | Gly | Lys | Phe | Thr | Tyr 320 |
| Pro | Thr | Gly | Glu | Ser 325 | Leu | Val | Tyr | Ser | Asn 330 | Trp | Ala | Ser | Gly | Glu 335 | Pro |
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Arg Ser Ala Ala Glu Val Cys Ala Thr His Thr Ile Ser Pro Gly Pro 35 40 45

Lys Gly Asp Asp Gly Glu Arg Gly Asp Thr Gly Glu Glu Gly Lys Asp 50 55 60

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Asp Met Gly Ala Gln Gly Asn Ile Gly Lys Ser Gly Pro Ile Gly Lys 85 90 95

Lys Gly Asp Lys Gly Glu Lys Gly Leu Leu Gly Ile Pro Gly Glu Lys
100 105 110

Gly Lys Ala Gly Thr Ile Cys Asp Cys Gly Arg Tyr Arg Lys Val Val 115 120 125

Gly Gln Leu Asp Ile Ser Val Ala Arg Leu Lys Thr Ser Met Lys Phe 130 . 135 140

Ile Lys Asn Val Ile Ala Gly Ile Arg Glu Thr Glu Glu Lys Phe Tyr 145 150 155 160

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| Thr | Leu | Ile 195 | Ala | Asp | Tyr | Val | Ala 200 | Lys | Ser | Gly | Phe | Phe 205 | Arg | Val | Phe |
| Ile | Gly 210 | Val | Asn | Asp | Leu | Glu 215 | Arg | Glu | Gly | Gln | Tyr 220 | Val | Phe | Thr | Asp |
| Asn 225 | Thr | Pro | Leu | Gln | Asn 230 | Tyr | Ser | Asn | Trp | Lys 235 | Glu | Glu | Glu | Pro | Ser 240 |
| Asp | Pro | Ser | Gly | His 245 | Glu | Asp | Cys | Val | Glu 250 | Met | Leu | Ser | Ser | Gly 255 | Arg |
| Trp | Asn | Asp | Thr 260 | Glu | Cys | His | Leu | Thr 265 | Met | Tyr | Phe | Val | Ser 270 | Ser | Leu |
| Gln | Glu | Asp 275 | Leu | Ile | Glu | Asp | Cys 280 | Leu | Arg | Glu | Gln | Gly 285 | Leu | Leu | Val |
| Gln | Val 290 | Thr | Pro | Ala | Asn | Gln 295 | Glu | Leu | Leu | Phe | Gly 300 | Ile | Asp | Thr | Phe |
| Leu 305 | Gly | Pro | Met | Ser | Cys 310 | Val | Tyr | Gln | Arg | Thr 315 | Gly | Thr | Lys | Gln | Lys 320 |
| Leu | Tyr | Ser | Gln | Cys 325 | Arg | Leu | Trp | Asp | Gly 330 | Leu | Ala | Lys | Lys | Gln 335 | Thr |
| Asn | Glu | Thr | Ala 340 | Asn | Ile | Ala | Thr | Phe 345 | Cys | Lys | Gly | Ala | Glu 350 | Pro | Asn |
| Arg | Gly | Ser 355 | Arg | Pro | Cys | Gly | Gln 360 | Lys | Gln | Glu | Met | Met 365 | Thr | Leu | Met |
| Met | Ser 370 | Gly | Asn | Lys | Gly | Ile 375 | Thr | Thr | Phe | Pro | Glu 380 | Ser | Asp | Asn | Leu |
| Phe 385 | Lys | Trp | Val | Gly | Thr 390 | Met | Leu | Gly | Ala | Ala 395 | Gly | Thr | Ile | Asp | Glu 400 |

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Ser Phe Leu Ile Thr Thr Val Asn Lys Thr Leu Gln Ala Tyr Asn Gly

Tyr Val Thr Asn Leu Gln Gln Asp Thr Ser Val Leu Gln Gly Asn Leu 180 185 190

Gln Ser Gln Met Tyr Ser Gln Ser Val Val Ile Met Asn Leu Asn Asn 195 200 205

Leu Asn Leu Thr Gln Val Gln Gln Arg Asn Leu Ile Ser Asn Leu Gln 210 215 220

Gln Ser Val Asp Asp Thr Ser Leu Ala Ile Gln Arg Ile Lys Asn Asp 225 230 235 240

Phe Gln Asn Leu Gln Gln Val Phe Leu Gln Ala Lys Lys Asp Thr Asp 245 250 255

Trp Leu Lys Glu Lys Val Gln Ser Leu Gln Thr Leu Ala Ala Asn Asn 260 265 270

Ser Ala Leu Ala Lys Ala Asn Asn Asp Thr Leu Glu Asp Met Asn Ser 275 280 285

Gln Leu Ser Ser Phe Thr Gly Gln Met Asp Asn Ile Thr Thr Ile Ser 290 295 300

Gln Ala Asn Glu Gln Ser Leu Lys Asp Leu Gln Asp Leu His Lys Asp 305 310 315 320

Thr Glu Asn Arg Thr Ala Val Lys Phe Ser Gln Leu Glu Glu Arg Phe 325 330 335

Gln Val Phe Glu Thr Asp Ile Val Asn Ile Ile Ser Asn Ile Ser Tyr 340 345 350

Thr Ala His His Leu Arg Thr Leu Thr Ser Asn Leu Asn Asp Val Arg 355 360 365

Thr Thr Cys Thr Asp Thr Leu Thr Arg His Thr Asp Asp Leu Thr Ser 370 380

Leu Asn Asn Thr Leu Val Asn Ile Arg Leu Asp Ser Ile Ser Leu Arg 385 390 395 400

| Met | Gln | Gln | Asp | Met 405 | Met | Arg | Ser | Lys | Leu 410 | Asp | Thr | Glu | Val | Ala 415 | Asn |
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| Leu | Ser | Val | Val 420 | Met | Glu | Glu | Met | Lys 425 | Leu | Val | Asp | Ser | Lys 430 | His | Gly |
| Gln | Leu | Ile 435 | Lys | Asn | Phe | Thr | Ile 440 | Leu | Gln | Gly | Pro | Pro 445 | Gly | Pro | Arg |
| Gly | Pro 450 | Lys | Gly | Asp | Arg | Gly 455 | Ser | Gln | Gly | Pro | Pro 460 | Gly | Pro | Thr | Gly |
| Asn 465 | Lys | Gly | Gln | Lys | Gly 470 | Glu | Lys | Gly | Glu | Pro 475 | Gly | Pro | Pro | Gly | Pro 480 |
| Ala | Gly | Glu | Arg | Gly 485 | Thr | Ile | Gly | Pro | Val 490 | Gly | Pro | Pro | Gly | Glu 495 | Arg |
| Gly | Ser | Lys | Gly 500 | Ser | Lys | Gly | Ser | Gln 505 | Gly | Pro | Lys | Gly | Ser 510 | Arg | Gly |
| Ser | Pro | Gly 515 | Lys | Pro | Gly | Pro | Gln 520 | Gly | Pro | Ser | Gly | Asp 525 | Pro | Gly | Pro |
| Pro | Gly 530 | Pro | Pro | Gly | Lys | Asp 535 | Gly | Leu | Pro | Gly | Pro 540 | Gln | Gly | Pro | Pro |
| Gly 545 | Phe | Gln | Gly | Leu | Gln 550 | Gly | Thr | Val | Gly | Glu 555 | Pro | Gly | Val | Pro | Gly 560 |
| Pro | Arg | Gly | Leu | Pro 565 | Gly | Leu | Pro | Gly | Val 570 | Pro | Gly | Met | Pro | Gly 57 5 | Pro |
| Lys | Gly | Pro | Pro 580 | Gly | Pro | Pro | Gly | Pro 585 | Ser | Gly | Ala | Met | Glu 590 | Pro | Leu |
| Ala | Leu | Gln 595 | Asn | Glu | Pro | Thr | Pro 600 | Ala | Ser | Glu | Val | Asn 605 | Gly | Cys | Pro |
| Pro | His 610 | Trp | Lys | Asn | Phe | Thr 615 | Asp | Lys | Cys | Tyr | Tyr 620 | Phe | Ser | Leu | Glu |
| Lys | Glu | Ile | Phe | Glu | Asp | Ala | Lys | Leu | Phe | Cys | Glu | Asp | Lys | Ser | Ser |

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His Thr Val Gly Arg Glu Ser His Trp Ile Gly Leu Thr Asp Ser Glu 660 665 670

Gln Glu Ser Glu Trp Lys Trp Leu Asp Gly Ser Pro Val Asp Tyr Lys 675 680 685

Asn Trp Lys Ala Gly Gln Pro Asp Asn Trp Gly Ser Gly His Gly Pro 690 695 700

Gly Glu Asp Cys Ala Gly Leu Ile Tyr Ala Gly Gln Trp Asn Asp Phe 705 710 715 720

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Pro Ala Tyr Ala Gly Val Pro Gly Thr Pro Gly His Asn Gly Leu Pro 35 40 45

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Glu Lys Gly Glu Pro Gly Val Asn Val Gln Gly Pro Pro Gly Lys Ala 65 70 75 80

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| Thr | Phe 130 | Lys | Lys | Val | Gly | Gln 135 | Lys | Tyr | Tyr | Val | Thr 140 | Asp | Asp | Val | Glu |
| Glu 145 | Thr | Phe | Asp | Lys | Gly 150 | Met | Gln | Tyr | Cys | Ser 155 | Ser | Asn | Gly | Gly | Ala 160 |
| Leu | Val | Leu | Pro | Arg 165 | Thr | Leu | Glu | Glu | Asn 170 | Ala | Leu | Leu | Lys | Val 175 | Phe |
| Val | Ser | Ser | Ala 180 | Phe | Lys | Arg | Leu | Phe 185 | Ile | Arg | Ile | Thr | Asp 190 | Arg | Glu |
| Lys | Glu | Gly 195 | Glu | Phe | Val | Asp | Thr 200 | Asp | Arg | Lys | Lys | Leu 205 | Thr | Phe | Thr |
| Asn | Trp 210 | Gly | Pro | Asn | Gln | Pro 215 | Asp | Asn | Tyr | Lys | Gly 220 | Ala | Gln | Asp | Cys |
| Gly 225 | Ala | Ile | Ala | Asp | Ser 230 | Gly | Leu | Trp | Asp | Asp 235 | Val | Ser | Cys | Asp | Ser 240 |
| Leu | Tyr | Pro | Ile | Île 245 | Cys | Glu | Ile | Glu | Ile 250 | Lys | | | | | |
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| Lys | Arg | Phe | Gly 20 | Ile | Gln | Glu | | Thr 25 | Gln | Cys | Thr | Lys | Cys 30 | Lys | Asn |

Gly Pro Pro Gly Pro Ala Gly Ala Lys Gly Glu Arg Gly Pro Ser Gly 85 90 95

| Asn | Trp | Ala 35 | Leu | Lys | Phe | Ser | Ile 40 | Ile | Leu | Leu | Tyr | Ile 45 | Leu | Cys | Ala |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Leu | Leu 50 | Thr | Ile | Thr | Val | Ala 55 | Ile | Leu | Gly | Tyr | Lys 60 | Val | Val | Glu | Lys |
| Met 65 | Asp | Asn | Val | Thr | Gly 70 | Gly | Met | Glu | Thr | Ser 75 | Arg | Gln | Thr | Tyr | Asp 80 |
| Asp | Lys | Leu | Thr | Ala 85 | Val | Glu | Ser | Asp | Leu 90 | Lys | Lys | Leu | Gly | Asp 95 | Gln |
| Thr | Gly | Lys | Lys 100 | Ala | Ile | Ser | Thr | Asn 105 | Ser | Glu | Leu | Ser | Thr 110 | Phe | Arg |
| Ser | Asp | Ile 115 | Leu | Asp | Leu | Arg | Gln 120 | Gln | Leu | Arg | Glu | Ile 125 | Thr | Glu | Lys |
| Thr | Ser 130 | Lys | Asn | Lys | Asp | Thr 135 | Leu | Glu | Lys | Leu | Gln 140 | Ala | Ser | Gly | Asp |
| Ala 145 | Leu | Val | Asp | Arg | Gln 150 | Ser | Gln | Leu | Lys | Glu 155 | Thr | Leu | Glu | Asn | Asn 160 |
| Ser | Phe | Leu | Ile | Thr 165 | Thr | Val | Asn | Lys | Thr 170 | Leu | Gln | Ala | Tyr | Asn 175 | Gly |
| Tyr | Val | Thr | Asn 180 | Leu | Gln | Gln | Asp | Thr 185 | Ser | Val | Leu | Gln | Gly 190 | Asn | Leu |
| Gln | Asn | Gln 195 | Met | Tyr | Ser | | Asn 200 | | Val | Ile | Met | Asn 205 | Leu | Asn | Asn |
| Leu | Asn 210 | Leu | Thr | Gln | Val | Gln 215 | Gln | Arg | Asn | Leu | Ile 220 | Thr | Asn | Leu | Gln |
| Arg 225 | Ser | Val | Asp | Asp | Thr 230 | Ser | Gln | Ala | Ile | Gln 235 | Arg | Ile | Lys | Asn | Asp 240 |
| Phe | Gln | Asn | Leu | Gln 245 | Gln | Val | Phe | Leu | Gln 250 | Ala | Lys | Lys | Asp | Thr 255 | Asp |
| Trp | Leu | Lys | Glu | Lys | Val | Gln | Ser | Leu | Gln | Thr | Leu | Ala | Ala | Asn | Asn |

- Ser Ala Leu Ala Lys Ala Asn Asn Asp Thr Leu Glu Asp Met Asn Ser 275 280 285
- Gln Leu Asn Ser Phe Thr Gly Gln Met Glu Asn Ile Thr Thr Ile Ser 290 295 300
- Gln Ala Asn Glu Gln Asn Leu Lys Asp Leu Gln Asp Leu His Lys Asp 305 310 315 320
- Ala Glu Asn Arg Thr Ala Ile Lys Phe Asn Gln Leu Glu Glu Arg Phe 325 330 335
- Gln Leu Phe Glu Thr Asp Ile Val Asn Ile Ile Ser Asn Ile Ser Tyr 340 345 350
- Thr Ala His His Leu Arg Thr Leu Thr Ser Asn Leu Asn Glu Val Arg 355 360 365
- Thr Thr Cys Thr Asp Thr Leu Thr Lys His Thr Asp Asp Leu Thr Ser 370 375 380
- Leu Asn Asn Thr Leu Ala Asn Ile Arg Leu Asp Ser Val Ser Leu Arg 385 390 395 400
- Met Gln Gln Asp Leu Met Arg Ser Arg Leu Asp Thr Glu Val Ala Asn 405 410 415
- Leu Ser Val Ile Met Glu Glu Met Lys Leu Val Asp Ser Lys His Gly 420 425 430
- Gln Leu Ile Lys Asn Phe Thr Ile Leu Gln Gly Pro Pro Gly Pro Arg 435 440 445
- Gly Pro Arg Gly Asp Arg Gly Ser Gln Gly Pro Pro Gly Pro Thr Gly 450 455 460
- Asn Lys Gly Gln Lys Gly Glu Lys Gly Glu Pro Gly Pro Gly Pro 465 470 475 480
- Ala Gly Glu Arg Gly Pro Ile Gly Pro Ala Gly Pro Pro Gly Glu Arg
 485 490 495

| Gly | Gly | Lys | Gly 500 | | Lys | Gly | Ser | Gln 505 | | Pro | Lys | Gly | Ser 510 | | Gly |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Ser | Pro | Gly 515 | - | Pro | Gly | Pro | Gln 520 | Gly | Pro | Ser | Gly | Asp 525 | | Gly | Pro |
| Pro | Gly 530 | Pro | Pro | Gly | Lys | Glu 535 | | Leu | Pro | Gly | Pro 540 | | Gly | Pro | Pro |
| Gly 545 | Phe | Gln | Gly | Leu | Gln 550 | Gly | Thr | Val | Gly | Glu 555 | | Gly | · Val | Pro | Gly 560 |
| Pro | Arg | Gly | Leu | Pro 565 | Gly | Leu | Pro | Gly | Val 570 | | Gly | Met | Pro | Gly 575 | Pro |
| Lys | Gly | Pro | Pro 580 | Gly | Pro | Pro | Gly | Pro 585 | Ser | Gly | Ala | Val | Val 590 | Pro | Leu |
| Ala | Leu | Gln 595 | Asn | Glu | Pro | Thr | Pro 600 | Ala | Pro | Glu | Asp | Asn 605 | Gly | Cys | Pro |
| Pro | His 610 | Trp | Lys | Asn | Phe | Thr 615 | Asp | Lys | Cys | Tyr | Tyr 620 | Phe | Ser | Val | Glu |
| Lys 625 | Glu | Ile | Phe | Glu | Asp 630 | Ala | Lys | Leu | Phe | Cys 635 | Glu | Asp | Lys | Ser | Ser 640 |
| His | Leu | Val | Phe | Ile 645 | Asn | Thr | Arg | Glu | Glu 650 | Gln | Gln | Trp | Ile | Lys 655 | Lys |
| Gln | Met | Val | Gly 660 | Arg | Glu | Ser | His | Trp 665 | Ile | Gly | Leu | Thr | Asp 670 | Ser | Glu |
| Arg | Glu | Asn 675 | Glu | Trp | Lys | Trp | Leu 680 | Asp | Gly | Thr | Ser | Pro 685 | Asp | Tyr | Lys |
| Asn | Trp 690 | Lys | Ala | Gly | Gln | Pro 695 | Asp | Asn | Trp | Gly | His 700 | Gly | His | Gly | Pro |
| Gly 705 | Glu | Asp | Cys | Ala | Gly 710 | Leu | Ile | Tyr | Ala | Gly 715 | Gln | Trp | Asn | Asp | Phe 720 |
| Gln | Cys | Glu | Asp | Val | Asn | Asn | Phe | Ile | Cys | Glu | Lys | Asp | Arg | Glu | Thr |

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Val Leu Ser Ser Ala Leu 740

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Asn Trp Ala Leu Lys Phe Ser Ile Ile Leu Leu Tyr Ile Leu Cys Ala 35 40 45

Leu Leu Thr Ile Thr Val Ala Ile Leu Gly Tyr Lys Val Val Glu Lys 50 55 60

Met Asp Asn Val Thr Gly Gly Met Glu Thr Ser Arg Gln Thr Tyr Asp 65 70 75 80

Asp Lys Leu Thr Ala Val Glu Ser Asp Leu Lys Lys Leu Gly Asp Gln 85 90 95

Thr Gly Lys Lys Ala Ile Ser Thr Asn Ser Glu Leu Ser Thr Phe Arg 100 105 110

Ser Asp Ile Leu Asp Leu Arg Gln Gln Leu Arg Glu Ile Thr Glu Lys 115 120 125

Thr Ser Lys Asn Lys Asp Thr Leu Glu Lys Leu Gln Ala Ser Gly Asp 130 135 140

Ala Leu Val Asp Arg Gln Ser Gln Leu Lys Glu Thr Leu Glu Asn Asn 145 150 155 160

Ser Phe Leu Ile Thr Thr Val Asn Lys Thr Leu Gln Ala Tyr Asn Gly 165 170 175

| Tyr | Val | Thr | Asn 180 | Leu | Gln | Gln | Asp | Thr 185 | | Val | Leu | Gln | Gly 190 | | . Leu |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Gln | Asn | Gln 195 | Met | Tyr | Ser | His | Asn 200 | Val | Val | Ile | Met | Asn 205 | | Asn | Asn |
| Leu | Asn 210 | | Thr | Gln | Val | Gln 215 | Gln | Arg | Asn | Leu | Ile 220 | Thr | Asn | Leu | Gln |
| Arg 225 | Ser | Val | Asp | Asp | Thr 230 | Ser | Gln | Ala | Ile | Gln 235 | Arg | Ile | Lys | Asn | Asp 240 |
| Phe | Gln | Asn | Leu | Gln 245 | Gln | Val | Phe | Leu | Gln 250 | Ala | Lys | Lys | Asp | Thr 255 | Asp |
| Trp | Leu | Lys | Glu 260 | Lys | Val | Gln | Ser | Leu 265 | Gln | Thr | Leu | Ala | Ala 270 | Asn | Asn |
| Ser | Ala | Leu 275 | Ala | Lys | Ala | Asn | Asn 280 | Asp | Thr | Leu | Glu | Asp 285 | Met | Asn | Ser |
| Gln | Leu 290 | Asn | Ser | Phe | Thr | Gly 295 | Gln | Met | Glu | Asn | Ile 300 | Thr | Thr | Ile | Ser |
| Gln 305 | Ala | Asn | Glu | Gln | Asn 310 | Leu | Lys | Asp | Leu | Gln 315 | Asp | Leu | His | Lys | Asp 320 |
| Ala | Glu | Asn | Arg | Thr 325 | Ala | Ile | Lys | Phe | Asn 330 | Gln | Leu | Glu | Glu | Arg 335 | Phe |
| Gln | Leu | Phe | Glu 340 | Thr | Asp | Ile | Val | Asn 345 | | Ile | Ser | Asn | Île 350 | Ser | Tyr |
| Thr | Ala | His 355 | His | Leu | Arg | Thr | Leu 360 | Thr | Ser | Asn | Leu | Asn 365 | Glu | Val | Arg |
| Thr | Thr 370 | Cys | Thr | Asp | Thr | Leu 375 | Thr | Lys | His | Thr | Asp 380 | Asp | Leu | Thr | Ser |
| Leu 385 | Asn | Asn | Thr | Leu | Ala 390 | Asn | Ile | Arg | Leu | Asp 395 | Ser | Val | Ser | Leu | Arg 400 |
| Met | Gln | Gln | Asp | Leu 405 | Met | Arg | Ser | Arg | Leu 410 | Asp | Thr | Glu | Val | Ala 415 | Asn |

| Leu Ser Val Ile Met Glu Glu Met Lys Leu Val Asp Ser Lys His Gly 420 425 430 | ? |
|--|---|
| Gln Leu Ile Lys Asn Phe Thr Ile Leu Gln Gly Pro Pro Gly Pro Arg 435 440 445 | 3 |
| Gly Pro Arg Gly Asp Arg Gly Ser Gln Gly Pro Pro Gly Pro Thr Gly 450 455 460 | , |
| Asn Lys Gly Gln Lys Gly Glu Lys Gly Glu Pro Gly Pro Gly Pro 465 470 475 480 | |
| Ala Gly Glu Arg Gly Pro Ile Gly Pro Ala Gly Pro Pro Gly Glu Arg 485 490 495 | ſ |
| Gly Gly Lys Gly Ser Lys Gly Ser Gln Gly Pro Lys Gly Ser Arg Gly 500 505 510 | , |
| Ser Pro Gly Lys Pro Gly Pro Gly Pro Ser Gly Asp Pro Gly Pro 515 520 525 | 1 |
| Pro Gly Pro Pro Gly Lys Glu Gly Leu Pro Gly Pro Gln Gly Pro Pro 530 540 | |
| Gly Phe Gln Gly Leu Gln Gly Thr Val Gly Glu Pro Gly Val Pro Gly 545 550 560 | |
| Pro Arg Gly Leu Pro Gly Leu Pro Gly Val Pro Gly Met Pro Gly Pro 565 570 575 | |
| Lys Gly Pro Pro Gly Pro Gly Pro Ser Gly Ala Val Val Pro Leu 580 585 590 | |
| Ala Leu Gln Asn Glu Pro Thr Pro Ala Pro Glu Asp Asn Ser Lys Ser 595 600 605 | |
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Lys Arg Phe Gly Ile His Glu Gly Thr Gln Cys Thr Lys Cys Ile Asn 20 25 30

Asn Trp Ala Leu Lys Phe Ser Ile Val Leu Leu Tyr Ile Leu Cys Ala 35 40 45

Leu Leu Thr Ile Thr Val Ala Ile Leu Gly Tyr Lys Val Val Glu Lys
50 55 60

Met Asp Asn Val Ser Asp Gly Met Glu Thr Ser His Gln Thr Tyr Asp 65 70 75 80

Asn Lys Leu Thr Ala Val Glu Ser Asp Leu Lys Lys Leu Gly Asp Gln 85 90 95

Ala Gly Lys Lys Ala Leu Ser Thr Asn Ser Glu Leu Ser Thr Phe Arg 100 105 110

Ser Asp Ile Leu Asp Leu Arg Gln Gln Leu Gln Glu Ile Thr Glu Lys 115 120 125

Thr Ser Lys Asn Lys Asp Thr Leu Glu Lys Leu Gln Ala Asn Gly Asp 130 135 140

Ser Leu Val Asp Arg Gln Ser Gln Leu Lys Glu Thr Leu Gln Asn Asn 145 150 155 160

Ser Phe Leu Ile Thr Thr Val Asn Lys Thr Leu Gln Ala Tyr Asn Gly 165 170 175

Tyr Val Thr Asn Leu Gln Gln Asp Thr Asn Val Leu Gln Gly Asn Leu 180 185 190

Gln Ser Gln Met Tyr Ser Gln Ser Val Val Ile Met Asn Leu Asn Asn 195 200 205

Leu Asn Leu Thr Gln Val Gln Gln Arg Asn Leu Ile Ser Asn Leu Gln 210 215 220

| Gln 225 | Ser | Val | Asp | Asp | Thr 230 | Ser | Leu | Ala | Ile | Gln 235 | Arg | Ile | Lys | Asn | Asp 240 |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Phe | Gln | Asn | Leu | Gln 245 | Gln | Val | Phe | Leu | Gln 250 | Ala | Lys | Lys | Asp | Thr 255 | Asp |
| Trp | Leu | Lys | Glu 260 | Lys | Val | Gln | Ser | Leu 265 | Gln | Thr | Leu | Ala | Ala 270 | Asn | Asn |
| Ser | Ala | Leu 275 | Ala | Lys | Ala | Asn | Asn 280 | Asp | Thr | Leu | Glu | Asp 285 | Met | Asn | Ser |
| Gln | Leu 290 | Ser | Ser | Phe | Thr | Gly 295 | Gln | Met | Asp | Asn | Ile 300 | Thr | Thr | Ile | Ser |
| Gln 305 | Ala | Asn | Glu | Gln | Ser 310 | Leu | Lys | Asp | Leu | Gln 315 | Asp | Leu | His | Lys | Asp 320 |
| Thr | Glu | Asn | Arg | Thr 325 | Ala | Val | Lys | Phe | Ser 330 | Gln | Leu | Glu | Glu | Arg 335 | Phe |
| Gln | Val | Phe | Glu 340 | Thr | Asp | Ile | Val | Asn 345 | Ile | Ile | Ser | Asn | Ile 350 | Ser | Tyr |
| Thr | Ala | His 355 | His | Leu | Arg | Thr | Leu 360 | Thr | Ser | Asn | Leu | Asn 365 | Asp | Val | Trp |
| Thr | Thr 370 | Cys | Thr | Asp | Thr | Leu 375 | Thr | Arg | His | Thr | Asp 380 | Asp | Leu | Thr | Ser |
| Leu 385 | Asn | Asn | Thr | Leu | Val 390 | Asn | Ile | Arg | Leu | Asp 395 | Ser | Ile | Ser | Leu | Arg 400 |
| Met | Gln | Gln | Asp | Met 405 | Met | Arg | Ser | Lys | Leu 410 | Asp | Thr | Glu | Val | Ala 415 | Asn |
| Leu | Ser | Val | Val 420 | Met | Glu | Glu | Met | Lys 425 | Leu | Val | Asp | Ser | Lys 430 | His | Gly |
| Gln | Leu | Ile 435 | Lys | Asn | Phe | Thr | Ile 440 | Leu | Gln | Gly | Pro | Pro 445 | Gly | Pro | Arg |
| Gly | Pro | Lys | Gly | Asp | Arg | Gly | Ser | Gln | Gly | Pro | Pro | Gly | Pro | Thr | Gly |

| Asn 465 | Lys | Gly | Gln | Lys | Gly 470 | Glu | Lys | Gly | Glu | Pro 475 | Gly | Pro | Pro | Gly | Pro 480 |
|-------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Ala | Gly | Glu | Arg | Gly 485 | Thr | Ile | Gly | Pro | Val 490 | Gly | Pro | Pro | Gly | Glu 495 | Arg |
| Gly | Ser | Lys | Gly 500 | Ser | Lys | Gly | Ser | Gln 505 | Gly | Pro | Lys | Gly | Ser 510 | Arg | Gly |
| Ser | Pro | Gly 515 | Lys | Pro | Gly | Pro | Gln 520 | Gly | Pro | Ser | Gly | Asp 525 | Pro | Gly | Pro |
| Pro | Gly 530 | Pro | Pro | Gly | Lys | Asp 535 | Gly | Leu | Pro | Gly | Pro 540 | Gln | Gly | Pro | Pro |
| Gly .545 | Phe | Gln | Gly | Leu | Gln 550 | Glý | Thr | Val | Gly | Glu 555 | Pro | Gly | Val | Pro | Gly 560 |
| Pro | Arg | Gly | Leu | Pro 565 | Gly | Leu | Pro | Gly | Val 570 | Pro | Gly | Met | Pro | Gly 575 | Pro |
| Lys | Gly | Pro | Pro 580 | Gly | Pro | Pro | Gly | Pro 585 | Ser | Gly | Ala | Met | Glu 590 | Pro | Leu |
| Ala | Leu | Gln 595 | Asn | Glu | Pro | Thr | Pro 600 | Ala | Ser | Glu | Val | Asn 605 | Gly | Cys | Pro |
| Pro | His 610 | Trp | Lys | Asn | Phe | Thr 615 | Asp | Lys | Cys | Tyr | Tyr 620 | Phe | Ser | Leu | Glu |
| Lys 625 | Glu | Ile | Leu | Glu | Asp 630 | Ala | Lys | Leu | Phe | Cys 635 | Glu | Asp | Lys | Ser | Ser 640 |
| His | Leu | Val | Phe | Ile 645 | Asn | Ser | Arg | Glu | Glu 650 | Gln | Gln | Trp | Ile | Lys 655 | Lys |
| His | Thr | Val | Gly 660 | Arg | Glu | Ser | His | Trp 665 | Ile | Gly | Leu | Thr | Asp 670 | Ser | Glu |
| Gln | Glu | Ser | Glu | Trp | Lys | Trp | Leu | Asp | Gly | Ser | Pro | Val | Asp | Tyr | Lys |

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Asn Trp Lys Ala Gly Gln Pro Asp Asn Trp Gly Ser Gly His Gly Pro

Gly Leu Lys Gly Asp Arg Gly Asp Pro Gly Glu Lys Gly Ala Arg Gly 145 150 Glu Thr Ser Val Leu Glu Val Asp Thr Leu Arg Gln Arg Met Arg Asn 170 165 Leu Glu Gly Glu Val Gln Arg Leu Gln Asn Ile Val Thr Gln Tyr Arg 190 180 185 Lys Ala Val Leu Phe Pro Asp Gly Gln Ala Val Gly Glu Lys Ile Phe 200 Lys Thr Ala Gly Ala Val Lys Ser Tyr Ser Asp Ala Glu Gln Leu Cys 215 Arg Glu Ala Lys Gly Gln Leu Ala Ser Pro Arg Ser Ser Ala Glu Asn 230 225 Glu Ala Val Thr Gln Leu Val Arg Ala Lys Asn Lys His Ala Tyr Leu 250 245 Ser Met Asn Asp Ile Ser Lys Glu Gly Lys Phe Thr Tyr Pro Thr Gly 265 260 Gly Ser Leu Asp Tyr Ser Asn Trp Ala Pro Gly Glu Pro Asn Asn Arg 275 280 Ala Lys Asp Glu Gly Pro Glu Asn Cys Leu Glu Ile Tyr Ser Asp Gly 295 300 290 Asn Trp Asn Asp Ile Glu Cys Arg Glu Glu Arg Leu Val Ile Cys Glu 310 Phe <210> 12 <211> 321 PRT <212> <213> Bos taurus

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1

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Asp Pro Cys Thr Leu Val Val Cys Ala Pro Pro Ala Asp Ser Leu Arg 35 40 45

Gly His Asp Gly Arg Asp Gly Lys Glu Gly Pro Gln Gly Glu Lys Gly 50 55 60

Asp Pro Gly Pro Pro Gly Met Pro Gly Pro Ala Gly Arg Glu Gly Pro 65 70 75 80

Ser Gly Arg Gln Gly Ser Met Gly Pro Pro Gly Thr Pro Gly Pro Lys 85 90 95

Gly Glu Pro Gly Pro Glu Gly Gly Val Gly Ala Pro Gly Met Pro Gly
100 105 110

Ser Pro Gly Pro Ala Gly Leu Lys Gly Glu Arg Gly Thr Pro Gly Pro 115 120 125

Gly Gly Ala Ile Gly Pro Gln Gly Pro Ser Gly Ala Met Gly Pro Pro 130 135 140

Gly Leu Lys Gly Asp Arg Gly Asp Pro Gly Glu Lys Gly Ala Arg Gly 145 150 155 160

Glu Thr Ser Val Leu Glu Val Asp Thr Leu Arg Gln Arg Met Arg Asn 165 170 175

Leu Glu Gly Glu Val Gln Arg Leu Gln Asn Ile Val Thr Gln Tyr Arg 180 185 190

Lys Ala Val Leu Phe Pro Asp Gly Gln Ala Val Gly Glu Lys Ile Phe 195 200 205

Lys Thr Ala Gly Ala Val Lys Ser Tyr Ser Asp Ala Glu Gln Leu Cys 210 215 220

Arg Glu Ala Lys Gly Gln Leu Ala Ser Pro Arg Ser Ser Ala Glu Asn 225 230 235 240

Glu Ala Val Thr Gln Leu Val Arg Ala Lys Asn Lys His Ala Tyr Leu 245 250 Ser Met Asn Asp Ile Ser Lys Glu Gly Lys Phe Thr Tyr Pro Thr Gly 260 265 Gly Ser Leu Asp Tyr Ser Asn Trp Ala Pro Gly Glu Pro Asn Asn Arg 280 Ala Lys Asp Glu Gly Pro Glu Asn Cys Leu Glu Ile Tyr Ser Asp Gly 290 Asn Trp Asn Asp Ile Glu Cys Arg Glu Glu Arg Leu Val Ile Cys Glu 310 Phe <210> 13 <211> 272 <212> PRT <213> Mus musculus <400> 13 Met Met Met Arg Asp Leu Ala Leu Ala Gly Met Leu Ile Ser Leu Ala Phe Leu Ser Leu Leu Pro Ser Gly Cys Pro Gln Gln Thr Thr Glu Asp 20 25 Ala Cys Ser Val Gln Ile Leu Val Pro Gly Leu Lys Gly Asp Ala Gly 40 35 Glu Lys Gly Asp Lys Gly Ala Pro Gly Arg Pro Gly Arg Val Gly Pro 55 50 Thr Gly Glu Lys Gly Asp Met Gly Asp Lys Gly Gln Lys Gly Thr Val 70 75 80 Gly Arg His Gly Lys Ile Gly Pro Ile Gly Ala Lys Gly Glu Lys Gly 85 Asp Ser Gly Asp Ile Gly Pro Pro Gly Pro Ser Gly Glu Pro Gly Ile 100 105

| Pro | Cys | Glu 115 | Cys | Ser | Gln | Leu | Arg 120 | Lys | Ala | Ile | Gly | Glu 125 | Met | Asp | Asn |
|------------------------------|--------------|---------------------------|----------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Gln | Val 130 | Thr | Gln | Leu | Thr | Thr 135 | Glu | Leu | Lys | Phe | Ile 140 | Lys | Asn | Ala | Val |
| Ala 145 | Gly | Val | Arg | Glu | Thr 150 | Glu | Ser | Lys | Ile | Tyr 155 | Leu | Leu | Val | Lys | Glu 160 |
| Glu | Lys | Arg | Tyr | Ala 165 | Asp | Ala | Gln | Leu | Ser 170 | Cys | Gln | Ala | Arg | Gly 175 | Gly |
| Thr | Leu | Ser | Met 180 | Pro | Lys | Asp | Glu | Ala 185 | Ala | Asn | Gly | Leu | Met 190 | Ala | Ser |
| Tyr | Leu | Ala 195 | Gln | Ala | Gly | Leu | Ala 200 | Arg | Val | Phe | Ile | Gly 205 | Ile | Asn | Asp |
| Leu | Glu 210 | Lys | Glu | Gly | Ala | Phe 215 | Val | Tyr | Ser | Asp | Arg 220 | Ser | Pro | Met | Gln |
| Thr 225 | Phe | Asn | Lys | Trp | Arg 230 | Ser | Gly | Glu | Pro | Asn 235 | Asn | Ala | Tyr | Asp | Glu 240 |
| Glu | Asp | Cys | Val | Glu 245 | Met | Val | Ala | Ser | Gly 250 | Gly | Trp | Asn | Asp | Val 255 | Ala |
| Cys | His | Ile | Thr 260 | Met | Tyr | Phe | Met | Cys 265 | Glu | Phe | Asp | Lys | Glu 270 | Asn | Leu |
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| Ser | Ser | Ser | Gly 20 | Ser | Gln | Thr | Cys | Glu 25 | Asp | Thr | Leu | Lys | Thr 30 | Cys | Ser |
| Val | Ile | Ala | Cys | Gly | Arg | Asp | Gly | Arg | Asp | Gly | Pro | Lys | Gly | Glu | Lys |

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Gly Glu Pro Gly Gln Gly Leu Arg Gly Leu Gln Gly Pro Pro Gly Lys
50 55 60

Leu Gly Pro Pro Gly Ser Val Gly Ser Pro Gly Ser Pro Gly Pro Lys
65 70 75 80

Gly Gln Lys Gly Asp His Gly Asp Asn Arg Ala Ile Glu Glu Lys Leu 85 90 95

Ala Asn Met Glu Ala Glu Ile Arg Ile Leu Lys Ser Lys Leu Gln Leu 100 105 110

Thr Asn Lys Leu His Ala Phe Ser Met Gly Lys Lys Ser Gly Lys Lys 115 120 125

Leu Phe Val Thr Asn His Glu Lys Met Pro Phe Ser Lys Val Lys Ser 130 135 140

Leu Cys Thr Glu Leu Gln Gly Thr Val Ala Ile Pro Arg Asn Ala Glu 145 150 155 160

Glu Asn Lys Ala Ile Gln Glu Val Ala Thr Gly Ile Ala Phe Leu Gly
165 170 175

Ile Thr Asp Glu Ala Thr Glu Gly Gln Phe Met Tyr Val Thr Gly Gly
180 185 190

Arg Leu Thr Tyr Ser Asn Trp Lys Lys Asp Glu Pro Asn Asn His Gly
195 200 205

Ser Gly Glu Asp Cys Val Ile Ile Leu Asp Asn Gly Leu Trp Asn Asp 210 215 220

Ile Ser Cys Gln Ala Ser Phe Lys Ala Val Cys Glu Phe Pro Ala 225 230 235

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<211> 244

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<213> Mus musculus

<400> 15

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| Tyr | Ala | Glu | Thr 20 | Leu | Thr | Glu | Gly | Val 25 | Gln | . Asn | Ser | Cys | Pro 30 | Va] | . Val |
| Thr | Cys | Ser 35 | Ser | Pro | Gly | Leu | Asn 40 | Gly | Phe | Pro | Gly | Lys 45 | Asp | Gly | ' Arg |
| Asp | Gly 50 | Ala | Lys | Gly | Glu | Lys 55 | Gly | Glu | Pro | Gly | Gln 60 | Gly | Leu | Arg | Gly |
| Leu 65 | Gln | Gly | Pro | Pro | Gly 70 | Lys | Val | Gly | Pro | Thr 75 | Gly | Pro | Pro | Gly | Asn 80 |
| Pro | Gly | Leu | Lys | Gly 85 | Ala | Val | Gly | Pro | Lys 90 | Gly | Asp | Arg | Gly | Asp 95 | Arg |
| Ala | Glu | Phe | Asp 100 | Thr | Ser | Glu | Ile | Asp 105 | Ser | Glu | Ile | Ala | Ala 110 | Leu | Arg |
| Ser | Glu | Leu 115 | Arg | Ala | Leu | Arg | Asn 120 | Trp | Val | Leu | Phe | Ser 125 | Leu | Ser | Glu |
| Lys | Val 130 | Gly | Lys | Lys | Tyr | Phe 135 | Val | Ser | Ser | Val | Lys 140 | Lys | Met | Ser | Leu |
| Asp 145 | Arg | Val | Lys | Ala | Leu 150 | Cys | Ser | Glu | Phe | Gln 155 | Gly | Ser | Val | Ala | Thr 160 |
| Pro | Arg | Asn | Ala | Glu 165 | Glu | Asn | Ser | Ala | Ile 170 | | Lys | Val | Ala | - | Asp |
| Ile | Ala | Tyr | Leu 180 | Gly | Ile | Thr | Asp | Val 185 | Arg | Val | Glu | Gly | Ser 190 | Phe | Glu |
| Asp | Leu | Thr 195 | Gly | Asn | Arg | Val | Arg 200 | Tyr | Thr | Asn | Trp | Asn 205 | Asp | Gly | Glu |
| Pro | Asn 210 | Asn | Thr | Gly | Asp | Gly 215 | Glu | Asp | Cys | Val | Val 220 | Ile | Leu | Gly | Asn |
| Gly 225 | Lys | Trp | Asn | Asp | Val 230 | Pro | Cys | Ser | | Ser 235 | Phe | Leu | Ala | Ile | Cys 240 |

Glu Phe Ser Asp

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Tyr Ile Val Gln Glu Glu Lys Asn Tyr Arg Glu Ser Leu Thr His Cys

Arg Ile Arg Gly Gly Met Leu Ala Met Pro Lys Asp Glu Ala Ala Asn

165

180 185 190

Thr Leu Ile Ala Asp Tyr Val Ala Lys Ser Gly Phe Phe Arg Val Phe 195 200 205

Ile Gly Val Asn Asp Leu Glu Arg Glu Gly Gln Tyr Met Phe Thr Asp 210 215 220

Asn Thr Pro Leu Gln Asn Tyr Ser Asn Trp Asn Glu Gly Glu Pro Ser 225 230 235 240

Asp Pro Tyr Gly His Glu Asp Cys Val Glu Met Leu Ser Ser Gly Arg 245 250 255

Trp Asn Asp Thr Glu Cys His Leu Thr Met Tyr Phe Val Cys Glu Phe 260 265 270

Ile Lys Lys Lys Lys 275

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<213> Homo sapiens

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1 5 10 15

Lys Arg Phe Gly Ile Gln Glu Gly Thr Gln Cys Thr Lys Cys Lys Asn 20 25 30

Asn Trp Ala Leu Lys Phe Ser Ile Ile Leu Leu Tyr Ile Leu Cys Ala 35 40 45

Leu Leu Thr Ile Thr Val Ala Ile Leu Gly Tyr Lys Val Val Glu Lys 50 55 60

Met Asp Asn Val Thr Gly Gly Met Glu Thr Ser Arg Gln Thr Tyr Asp 70 75 80

Asp Lys Leu Thr Ala Val Glu Ser Asp Leu Lys Lys Leu Gly Asp Gln 85 90 95

| Thr | Gly | Lys | Lys 100 | Ala | Ile | Ser | Thr | Asn 105 | Ser | Glu | Leu | Ser | Thr 110 | Phe | Arg |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Ser | Asp | Ile 115 | Leu | Asp | Leu | Arg | Gln 120 | Gln | Leu | Arg | Glu | Ile 125 | Thr | Glu | Lys |
| Thr | Ser 130 | Lys | Asn | Lys | Asp | Thr 135 | Leu | Glu | Lys | Leu | Gln 140 | Ala | Ser | Gly | Asp |
| Ala 145 | Leu | Val | Asp | Arg | Gln 150 | Ser | Gln | Leu | Lys | Glu 155 | Thr | Leu | Glu | Asn | Asn 160 |
| Ser | Phe | Leu | Ile | Thr 165 | Thr | Val | Asn | Lys | Thr 170 | Leu | Gln | Ala | Tyr | Asn 175 | Gly |
| Tyr | Val | Thr | Asn 180 | Leu | Gln | Gln | Asp | Thr 185 | Ser | Val | Leu | Gln | Gly 190 | Asn | Leu |
| Gln | Asn | Gln 195 | Met | Tyr | Ser | His | Asn 200 | Val | Val | Ile | Met | Asn 205 | Leu | Asn | Asn |
| Leu | Asn 210 | Leu | Thr | Gln | Val | Gln 215 | Gln | Arg | Asn | | Ile 220 | Thr | Asn | Leu | Gln |
| Arg 225 | Ser | Val | Asp | Asp | Thr 230 | Ser | Gln | Ala | Ile | Gln 235 | Arg | Ile | Lys | Asn | Asp 240 |
| Phe | Gln | Asn | Leu | Gln 245 | Gln | Val | Phe | Leu | Gln 250 | Ala | Lys | Lys | Asp | Thr 255 | Asp |
| Trp | Leu | Lys | Glu 260 | Lys | Val | Gln | Ser | Leu 265 | Gln | Thr | Leu | Ala | Ala 270 | Asn | Asn |
| Ser | Ala | Leu 275 | Ala | Lys | Ala | Asn | Asn 280 | Asp | Thr | Leu | Glu | Asp 285 | Met | Asn | Ser |
| Gln | Leu 290 | Asn | Ser | Phe | Thr | Gly 295 | Gln | Met | Glu | Asn | Ile 300 | Thr | Thr | Ile | Ser |
| Gln 305 | Ala | Asn | Glu | Gln | Asn 310 | Leu | Lys | Asp | Leu | Gln 315 | Asp | Leu | His | Lys | Asp 320 |
| Ala | Glu | Asn | Arg | Thr 325 | Ala | Ile | Lys | Phe | Asn 330 | Gln | Leu | Glu | Glu | Arg 335 | Phe |

| Gln | Leu | Phe | Glu 340 | Thr | Asp | Ile | Val | Asn 345 | | : Ile | Ser | Asn | 350 | | Tyr |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--------------|------------|------------|------------|
| Thr | Ala | His 355 | His | Leu | Arg | Thr | Leu 360 | | Ser | Asn | Leu | . Asn 365 | | . Val | Arg |
| Thr | Thr 370 | Cys | Thr | Asp | Thr | Leu 375 | Thr | Lys | His | Thr | Asp 380 | _ | Leu | Thr | Ser |
| Leu 385 | Asn | Asn | Thr | Leu | Ala 390 | Asn | Ile | Arg | Leu | Asp 395 | Ser | Val | Ser | Leu | Arg 400 |
| Met | Gln | Gln | Asp | Leu 405 | Met | Arg | Ser | Arg | Leu 410 | | Thr | Glu | Val | Ala 415 | |
| Leu | Ser | Val | Ile 420 | Met | Glu | Glu | Met | Lys 425 | Leu | Val | Asp | Ser | Lys 430 | His | Gly |
| Gln | Leu | Ile 435 | Lys | Asn | Phe | Thr | Ile 440 | Leu | Gln | Gly | Pro | Pro 445 | Gly | Pro | Arg |
| Gly | Pro 450 | Arg | Gly | Asp | Arg | Gly 455 | Ser | Gln | Gly | Pro | Pro 460 | Gly | Pro | Thr | Gly |
| Asn 465 | Lys | Gly | Gln | Lys | Gly 470 | Glu | Lys | Gly | Glu | Pro 475 | Gly | Pro | Pro | Gly | Pro 480 |
| Ala | Gly | Glu | Arg | Gly 485 | Pro | Ile | Gly | Pro | Ala 490 | Gly | Pro | Pro | Gly | Glu 495 | Arg |
| Gly | Gly | Lys | Gly 500 | Ser | Lys | Gly | Ser | Gln 505 | Gly | Pro | Lys | Gly | Ser 510 | Arg | Gly |
| Ser | Pro | Gly 515 | Lys | Pro | Gly | Pro | Gln 520 | Gly | Pro | Ser | Gly | Asp 525 | Pro | Gly | Pro |
| Pro | Gly 530 | Pro | Pro | Gly | Lys | Glu 535 | Gly | Leu | Pro | Gly | Pro 540 | Gln | Gly | Pro | Pro |
| Gly 545 | Phe | Gln | Gly | Leu | Gln 550 | Gly | Thr | Val | Gly | Glu 555 | Pro | Gly | Val | Pro | Gly 560 |

| Pro | Arg | Gly | Leu | Pro 565 | Gly | Leu | Pro | Gly | Val 570 | Pro | Gly | Met | Pro | Gly 575 | Pro |
|------------------------------|--------------|---------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Lys | Gly | Pro | Pro 580 | Gly | Pro | Pro | Gly | Pro 585 | Ser | Gly | Ala | Val | Val 590 | Pro | Leu |
| Ala | Leu | Gln 595 | Asn | Glu | Pro | Thr | Pro 600 | Ala | Pro | Glu | Asp | Asn 605 | Gly | Сув | Pro |
| Pro | His 610 | Trp | Lys | Asn | Phe | Thr 615 | Asp | Lys | Cys | Tyr | Tyr 620 | Phe | Ser | Val | Glu |
| Lys 625 | Glu | Ile | Phe | Glu | Asp 630 | Ala | Lys | Leu | Phe | Cys 635 | Glu | Asp | Lys | Ser | Ser 640 |
| His | Leu | Val | Phe | Ile 645 | Asn | Thr | Arg | Glu | Glu 650 | Gln | Gln | Trp | Ile | Lys 655 | Lys |
| Gln | Met | Val | Gly 660 | Arg | Glu | Ser | His | Trp 665 | Ile | Gly | Leu | Thr | Asp 670 | Ser | Glu |
| Arg | Glu | Asn 675 | Glu | Trp | Lys | Trp | Leu 680 | Asp | Gly | Thr | Ser | Pro 685 | Asp | Tyr | Lys |
| Asn | Trp 690 | Lys | Ala | Gly | Gln | Pro 695 | Asp | Asn | Trp | Gly | His 700 | Gly | His | Gly | Pro |
| Gly 705 | Glu | Asp | Cys | Ala | Gly 710 | Leu | Ile | Tyr | Ala | Gly 715 | Gln | Trp | Asn | Asp | Phe 720 |
| Gln | Cys | Glu | Asp | Val 725 | Asn | Asn | Phe | Ile | Cys 730 | Glu | Lys | Asp | Arg | Glu 735 | Thr |
| Val | Leu | Ser | Ser 740 | Ala | Leu | | | | | | | | | | |
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| Leu 1 | Leu | Leu | Leu | Gln 5 | Phe | Ala | Leu | Gln | Leu 10 | Leu | Asp | Gly | Ala | Glu 15 | Pro |

| Gln | Asn | Leu | Asn 20 | Cys | Pro | Ala | Tyr | Gly 25 | Gly | Val | Pro | Gly | Thr 30 | Pro | Gly |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| His | Asn | Gly 35 | Leu | Pro | Gly | Arg | Asp 40 | Gly | Arg | Asp | Gly | Lys 45 | Asp | Gly | Ala |
| Ile | Gly 50 | Pro | Lys | Gly | Glu | Lys 55 | Gly | Glu | Ser | Gly | Val 60 | Ser | Val | Gln | Gly |
| Pro 65 | Pro | Gly | Lys | Ala | Gly 70 | Pro | Pro | Gly | Thr | Ala 75 | Gly | Glu | Lys | Gly | Glu 80 |
| Arg | Gly | Pro | Ser | Gly 85 | Pro | Gln | Gly | Ser | Pro 90 | Gly | Ser | Glu | Ser | Val 95 | Leu |
| Glu | Ser | Leu | Lys 100 | Ser | Glu | Ile | Gln | Gln 105 | Leu | Lys | Ala | Lys | Ile 110 | Ala | Thr |
| Phe | Glu | Lys 115 | Val | Ser | Ser | Val | Cys 120 | His | Phe | Arg | Lys | Val 125 | Gly | Gln | Lys |
| Tyr | Tyr 130 | Ile | Thr | Asp | Gly | Val 135 | Val | Gly | Asn | Phe | Asp 140 | Gln | Gly | Leu | Lys |
| Ser 145 | Cys | Met | Glu | Phe | Gly 150 | Gly | Thr | Met | Val | Ser 155 | Pro | Arg | Thr | Ser | Ala 160 |
| Glu | Asn | Gln | Ala | Leu 165 | Leu | Lys | Leu | Val | Val 170 | Ser | Ser | Gly | Leu | Gly 175 | Ser |
| Lys | Lys | | Tyr 180 | Ile | Gly | Val | | Asp 185 | | Lys | Thr | Glu | Gly 190 | Gln | Phe |
| Val | Asp | Thr 195 | Glu | Gly | Lys | Gln | Leu 200 | Thr | Phe | Thr | Asn | Trp 205 | Gly | Pro | Gly |
| Gln | Pro 210 | Asp | Asp | Tyr | Lys | Gly 215 | Leu | Gln | Asp | Cys | Gly 220 | Val | Ile | Glu | Asp |
| Thr 225 | Gly | Leu | Trp | Asp | Asp 230 | Gly | Gly | Cys | Gly | Asp 235 | Ile | Arg | Pro | Ile | Met 240 |

Cys Glu Ile Asp Ile Lys

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Pro Ala Tyr Ala Gly Val Pro Gly Thr Pro Gly His Asn Gly Leu Pro 35 40 45

Gly Arg Asp Gly Arg Val Gly Arg Asp Gly Ala Asn Gly Pro Lys Gly
50 55 60

Glu Lys Gly Glu Pro Gly Val Asn Val Gln Gly Pro Pro Gly Lys Ala 65 70 75 80

Gly Pro Pro Gly Pro Ala Gly Ala Lys Gly Glu Arg Gly Pro Ser Gly 85 90 95

Leu Pro Gly Gln Asp Cys Met Ser Asp Ser Leu Lys Ser Glu Leu Gln
100 105 110

Lys Leu Ser Asp Lys Ile Ala Leu Ile Glu Lys Val Val Asn Phe Lys 115 120 125

Thr Phe Lys Lys Val Gly Gln Lys Tyr Tyr Val Thr Asp Asp Val Glu 130 135 140

Glu Thr Phe Asp Lys Gly Met Gln Tyr Cys Ser Ser Asn Gly Gly Ala 145 150 155 160

Leu Val Leu Pro Arg Thr Leu Glu Glu Asn Ala Leu Leu Lys Val Phe 165 170 175

Val Ser Ser Ala Phe Lys Arg Leu Phe Ile Arg Ile Thr Asp Arg Glu 180 185 190

Lys Glu Gly Glu Phe Val Asp Thr Asp Arg Lys Lys Leu Thr Phe Thr 195 Asn Trp Gly Pro Asn Gln Pro Asp Asn Tyr Lys Gly Ala Gln Asp Cys 215 210 Gly Ala Ile Ala Asp Ser Gly Leu Trp Asp Asp Val Ser Cys Asp Ser 230 235 Leu Tyr Pro Ile Ile Cys Glu Ile Glu Ile Lys 245 <210> 20 <211> 256 <212> PRT <213> Cyprinus carpio <400> 20 Met Ala Leu Phe Lys Leu Phe Leu Gly Thr Leu Leu Leu Gln Phe 5 Ala Leu Gln Leu Leu Asp Gly Ala Glu Pro Gln Asn Leu Asn Cys Pro Ala Tyr Gly Gly Val Pro Gly Thr Pro Gly His Asn Gly Leu Pro Gly 40 Arg Asp Gly Arg Asp Gly Lys Asp Gly Ala Ile Gly Pro Lys Gly Glu 55 Lys Gly Glu Ser Gly Val Ser Val Gln Gly Pro Pro Gly Lys Ala Gly Pro Pro Gly Pro Ala Gly Glu Lys Gly Glu Arg Gly Pro Thr Gly Ser Gln Gly Ser Pro Gly Ser Glu Ser Val Leu Glu Ser Leu Lys Ser Glu 100 105 Ile Gln Gln Leu Lys Ala Lys Ile Ala Thr Phe Glu Lys Val Ala Ser 120 Val Gly His Phe Arg Gln Val Gly Gln Lys Tyr Tyr Ile Thr Asp Gly 130 135 140

| Val Val Gly 145 | Thr Phe | Asp 150 | Gln | Gly | Leu | Lys | Phe 155 | Cys | Lys | Asp | Phe | Gly 160 |
|---|---|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------|-------------------------|-------------------------|-------------------------|------------|-------------------|
| Gly Thr Met | Val Phe | | Arg | Thr | Ser | Ala 170 | Glu | Asn | Gln | Ala | Leu 175 | Leu |
| Lys Leu Val | Val Ser 180 | Ser | Gly | Leu | Ser 185 | Ser | Lys | Lys | Pro | Tyr 190 | Ile | Gly |
| Val Thr Asp 195 | Arg Glu | Thr | Glu | Gly 200 | Arg | Phe | Val | Asn | Thr 205 | Glu | Gly | Lys |
| Gln Leu Thr 210 | Phe Thr | Asn | Trp 215 | Gly | Pro | Gly | Gln | Pro 220 | Asp | Asp | Tyr | Lys |
| Gly Leu Gln 225 | Asp Cys | Gly 230 | Val | Ile | Glu | Asp | Ser 235 | Gly | Leu. | Trp | Asp | Asp 240 |
| Gly Ser Cys | Gly Asp 245 | Ile | Arg | Pro | Ile | Met 250 | Сув | Glu | Ile | Asp | Asn 255 | Lys |
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Gly Val Leu Ala Leu Asp Gly Lys Ile Thr Lys Val Gly Glu Lys Ile Phe Ala Ser Asn Gly Lys Glu Val Asn Phe Ser Ser Ala Leu Glu Ser 120 Cys Glu Glu Thr Gly Gly Thr Leu Ala Thr Pro Met Asn Glu Glu Glu 140 135 Asn Lys Ala Ile Met Gly Ile Val Lys Gln Tyr Asn Arg Tyr Ala Tyr 150 155 Leu Gly Ile Lys Glu Ser Asp Thr Ala Gly Gln Phe Lys Tyr Val Asn 165 • 170 Asn Gln Pro Leu Asn Tyr Thr Ser Trp Gln Gln Tyr Glu Pro Asn Gly 180 Lys Gly Thr Glu Lys Cys Val Glu Met Tyr Thr Asp Gly Asn Trp Lys 200 Asp Arg Lys Cys Asn Leu Tyr Arg Leu Thr Val Cys Glu Tyr 215 <210> 22 <211> 244 <212> PRT <213> Mus musculus <400> 22 Met Ser Ile Phe Thr Ser Phe Leu Leu Cys Val Val Thr Val Val Tyr Ala Glu Thr Leu Thr Glu Gly Val Gln Asn Ser Cys Pro Val Val Thr Cys Ser Ser Pro Gly Leu Asn Gly Phe Pro Gly Lys Asp Gly Arg Asp Gly Ala Lys Gly Glu Lys Gly Glu Pro Gly Gln Gly Leu Arg Gly

Leu Gln Gly Pro Pro Gly Lys Val Gly Pro Thr Gly Pro Pro Gly Asn

Pro Gly Leu Lys Gly Ala Val Gly Pro Lys Gly Asp Arg Gly Asp Arg 85

Ala Glu Phe Asp Thr Ser Glu Ile Asp Ser Glu Ile Ala Ala Leu Arg 100 105

Ser Glu Leu Arg Ala Leu Arg Asn Trp Val Leu Phe Ser Leu Ser Glu 120 115

Lys Val Gly Lys Lys Tyr Phe Val Ser Ser Val Lys Lys Met Ser Leu 135

Asp Arg Val Lys Ala Leu Cys Ser Glu Phe Gln Gly Ser Val Ala Thr 145

Pro Arg Asn Ala Glu Glu Asn Ser Ala Ile Gln Lys Val Ala Lys Asp

Ile Ala Tyr Leu Gly Ile Thr Asp Val Arg Val Glu Gly Ser Phe Glu 180

Asp Leu Thr Gly Asn Arg Val Arg Tyr Thr Asn Trp Asn Asp Gly Glu 200

Pro Asn Asn Thr Gly Asp Gly Glu Asp Cys Val Val Ile Leu Gly Asn 215

Gly Lys Trp Asn Asp Val Pro Cys Ser Asp Ser Phe Leu Ala Ile Cys 230

Glu Phe Ser Asp

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<211> 239

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<400> 23

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<211> 371

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Arg Ser Leu Gly Ala Glu Met Thr Thr Phe Ser Gln Lys Ile Leu Ala

Asn Ala Cys Thr Leu Val Met Cys Ser Pro Leu Glu Ser Gly Leu Pro 40

Gly His Asp Gly Gln Asp Gly Arg Glu Cys Pro His Gly Glu Lys Gly 55

Asp Pro Gly Ser Pro Gly Pro Ala Gly Arg Ala Gly Arg Pro Gly Trp

Val Gly Pro Ile Gly Pro Lys Gly Asp Asn Gly Phe Val Gly Glu Pro

Gly Pro Lys Gly Asp Thr Gly Pro Arg Gly Pro Pro Gly Met Pro Gly

Pro Ala Gly Arg Glu Gly Pro Ser Gly Lys Gln Gly Ser Met Gly Pro 120

Pro Gly Thr Pro Gly Pro Lys Gly Glu Thr Gly Pro Lys Gly Gly Val

Gly Ala Pro Gly Ile Gln Gly Phe Pro Gly Pro Ser Gly Leu Lys Gly

Glu Lys Gly Ala Pro Gly Glu Thr Gly Ala Pro Gly Arg Ala Gly Val 170

Thr Gly Pro Ser Gly Ala Ile Gly Pro Gln Gly Pro Ser Gly Ala Arg

Gly Pro Pro Gly Leu Lys Gly Asp Arg Gly Asp Pro Gly Glu Thr Gly 195 200

Ala Lys Gly Glu Ser Gly Leu Ala Glu Val Asn Ala Leu Lys Gln Arg

210 215 220

Val Thr Ile Leu Asp Gly His Leu Arg Arg Phe Gln Asn Ala Phe Ser 225 230 235 240

Gln Tyr Lys Lys Ala Val Leu Phe Pro Asp Gly Gln Ala Val Gly Glu 245 250 255

Lys Ile Phe Lys Thr Ala Gly Ala Val Lys Ser Tyr Ser Asp Ala Glu 260 265 270

Gln Leu Cys Arg Glu Ala Lys Gly Gln Leu Ala Ser Pro Arg Ser Ser 275 280 285

Ala Glu Asn Glu Ala Val Thr Gln Met Val Arg Ala Gln Glu Lys Asn 290 295 300

Ala Tyr Leu Ser Met Asn Asp Ile Ser Thr Glu Gly Arg Phe Thr Tyr 305 310 315 320

Pro Thr Gly Glu Ile Leu Val Tyr Ser Asn Trp Ala Asp Gly Glu Pro 325 330 335

Asn Asn Ser Asp Glu Gly Gln Pro Glu Asn Cys Val Glu Ile Phe Pro 340 345 350

Asp Gly Lys Trp Asn Asp Val Pro Cys Ser Lys Gln Leu Leu Val Ile 355 360 365

Cys Glu Phe 370

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<212> PRT

<213> Gallus gallus

<400> 25

Leu Leu Thr Cys Asp Lys Pro Glu Glu Lys Met Tyr Ser Cys Pro Ile 1 5 10 15

Ile Gln Cys Ser Ala Pro Ala Val Asn Gly Leu Pro Gly Asp 20 25 30

| | PRT Bos (| taurı | ıs | | | | | | | | | | | |
|----------------|--------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
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| Glu Glu 1 | Met | Asp | Val 5 | Tyr | Ser | Glu | Lys | Thr | Leu | Thr | Asp | Pro | Cys 15 | Thr |
| Leu Val | Val | Cys 20 | Ala | Pro | Pro | Ala | Asp 25 | Ser | Leu | Arg | Gly | His 30 | Asp | Gly |
| Arg Asp | Gly 35 | Lys | Glu | Gly | Pro | Gln 40 | Gly | Glu | Lys | Gly | Asp 45 | Pro | Gly | Pro |
| Pro Gly 50 | Met | Pro | Gly | Pro | Ala 55 | Gly | Arg | Glu | Gly | Pro 60 | Ser | Gly | Arg | Gln |
| Gly Ser 65 | Met | Gly | Pro | Pro 70 | Gly | Thr | Pro | Gly | Pro 75 | Lys | Gly | Glu | Pro | Gly 80 |
| Pro Glu | Gly | Gly | Val 85 | Gly | Ala | Pro | Gly | Met 90 | Pro | Gly | Ser | Pro | Gly 95 | Pro |
| Ala Gly | Leu | Lys 100 | Gly | Glu | Arg | Gly | Ala 105 | Pro | Gly | Pro | Gly | Gly 110 | Ala | Ile |
| Gly Pro | Gln 115 | Gly | Pro | Ser | Gly | Ala 120 | Met | Gly | Pro | Pro | Gly 125 | Leu | Lys | Gly |
| Asp Arg 130 | Gly | Asp | Pro | Gly | Glu 135 | Lys | Gly | Ala | Arg | Gly 140 | Glu | Thr | Ser | Val |
| Leu Glu 145 | Val | Asp | Thr | Leu 150 | Arg | Gln | Arg | Met | Arg 155 | Asn | Leu | Glu | Gly | Glu 160 |
| Val Gln | Arg | Leu | Gln 165 | Asn | Ile | Val | Thr | Gln 170 | Tyr | Arg | Lys | Ala | Val 175 | Leu |
| Phe Pro | Asp | Gly 180 | Gln | Ala | Val | Gly | Glu 185 | Lys | Ile | Phe | Lys | Thr 190 | Ala | Gly |
| Ala Val | Lys 195 | Ser | Tyr | Ser | Asp | Ala 200 | Glu | Gln | Leu | Cys | Arg 205 | Glu | Ala | Lys |

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105

Ile Cys Glu Phe 115

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<211> 378

<212> PRT

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<400> 28

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Arg Ser Leu Gly Ala Glu Met Lys Thr Tyr Ser Gln Arg Ala Val Ala 20 25 30

Asn Ala Cys Ala Leu Val Met Cys Ser Pro Met Glu Asn Gly Leu Pro 35 40 45

Gly Arg Asp Gly Arg Gly Arg Glu Gly Pro Arg Gly Glu Lys Gly
50 60

Asp Pro Gly Leu Pro Gly Ala Val Gly Arg Ala Gly Met Pro Gly Leu 65 70 75 80

Ala Gly Pro Val Gly Pro Lys Gly Asp Asn Gly Ser Thr Gly Glu Pro 85 90 95

Gly Ala Lys Gly Asp Ile Gly Pro Cys Gly Pro Pro Gly Pro Pro Gly 100 105 110

Ile Pro Gly Pro Ala Gly Lys Glu Gly Pro Ser Gly Gln Gln Gly Asn 115 120 125

Ile Gly Pro Pro Gly Thr Pro Gly Pro Lys Gly Glu Thr Gly Pro Lys 130 135 140

Gly Glu Val Gly Ala Leu Gly Met Gln Gly Ser Thr Gly Ala Arg Gly 145 150 155 160

Pro Ala Gly Leu Lys Gly Glu Arg Gly Ala Pro Gly Glu Arg Gly Ala 165 170 175

Pro Gly Ser Ala Gly Ala Ala Gly Pro Ala Gly Ala Thr Gly Pro Gln

180 185 190

Gly Pro Ser Gly Ala Arg Gly Pro Pro Gly Leu Lys Gly Asp Arg Gly
195 200 205

Pro Pro Gly Glu Arg Gly Ala Lys Gly Glu Ser Gly Leu Pro Gly Ile 210 215 220

Thr Ala Leu Arg Gln Gln Val Glu Thr Leu Gln Gly Gln Val Gln Arg
225 230 235 240

Leu Gln Lys Ala Phe Ser Gln Tyr Lys Lys Val Glu Leu Phe Pro Asn 245 250 255

Gly Arg Gly Val Gly Glu Lys Íle Phe Lys Thr Gly Gly Phe Glu Lys 260 265 270

Thr Phe Gln Asp Ala Gln Gln Val Cys Thr Gln Ala Gly Gln Met 275 280 285

Ala Ser Pro Arg Ser Glu Thr Glu Asn Glu Ala Leu Ser Gln Leu Val 290 295 300

Thr Ala Gln Asn Lys Ala Ala Phe Leu Ser Met Thr Asp Ile Lys Thr 305 310 315 320

Glu Gly Asn Phe Thr Tyr Pro Thr Gly Glu Pro Leu Val Tyr Ala Asn 325 330 335

Trp Ala Pro Gly Glu Pro Asn Asn Gly Gly Ser Ser Gly Ala Glu 340 345 350

Asn Cys Val Glu Ile Phe Pro Asn Gly Lys Trp Asn Asp Lys Ala Cys 355 360 365

Gly Glu Leu Arg Leu Val Ile Cys Glu Phe 370 375

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<212> PRT

<213> Mus musculus

<400> 29

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|------------|------------|------------|------------|------------|------------|------------|------------|-------------|------------|------------|------------|------------|------------|-------------|------------|
| Tyr | Ala | Glu | Thr 20 | Leu | Thr | Glu | Gly | 7 Val 25 | . Gln | ı Asn | . Ser | Cys | Pro 30 | Va: | l Val |
| Thr | Cys | Ser 35 | Ser | Pro | Gly | Leu | Asn 40 | Gly | Phe | Pro | Gly | Lys 45 | a Asp | Gly | / Arg |
| Asp | Gly 50 | Ala | Lys | Gly | Glu | Lys 55 | Gly | Glu | . Pro | Gly | Gln 60 | Gly | Leu | Ar <u>c</u> | g Gly |
| Leu 65 | Gln | Gly | Pro | Pro | Gly 70 | Lys | Val | Gly | Pro | Thr 75 | Gly | Pro | Pro | Gly | Asn 80 |
| Pro | Gly | Leu | Lys | Gly 85 | Ala | Val | Gly | Pro | Lys 90 | Gly | Asp | Arg | Gly | Asp 95 | Arg |
| Ala | Glu | Phe | Asp 100 | Thr | Ser | Glu | Ile | Asp 105 | Ser | Glu | Ile | Ala | Ala 110 | Leu | Arg |
| Ser | Glu | Leu 115 | Arg | Ala | Leu | Arg | Asn 120 | Trp | Val | Leu | Phe | Ser 125 | Leu | Ser | Glu |
| Lys | Val | Gly | Lys | Lys | Tyr | Phe 135 | Val | Ser | Ser | Val | Lys 140 | Lys | Met | Ser | Leu |
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| Pro | Arg | Asn | | Glu 165 | Glu | Asn | Ser | | Ile 170 | | Lys | Val | Ala | Lys 175 | Asp |
| Ile | Ala | Tyr | Leu 180 | Gly | Ile | Thr | Asp | Val 185 | Arg | Val | Glu | Gly | Ser 190 | Phe | Glu |
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Glu Phe Ser Asp

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Ile Thr Asp Glu Ala Thr Glu Gly Gln Phe Met Tyr Val Thr Gly Gly

Glu Asn Lys Ala Ile Gln Glu Val Ala Thr Gly Ile Ala Phe Leu Gly

150

165

180 185 190

Arg Leu Thr Tyr Ser Asn Trp Lys Lys Asp Glu Pro Asn Asn His Gly
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Ser Gly Glu Asp Cys Val Ile Ile Leu Asp Asn Gly Leu Trp Asn Asp 210 215 220

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Arg Asp Gly Lys Glu Gly Pro Gln Gly Glu Lys Gly Asp Pro Gly Pro 35 40 45 .

Pro Gly Met Pro Gly Pro Ala Gly Arg Glu Gly Pro Ser Gly Arg Gln 50 55 60

Gly Ser Met Gly Pro Pro Gly Thr Pro Gly Pro Lys Gly Glu Pro Gly 65 70 75 80

Pro Glu Gly Gly Val Gly Ala Pro Gly Met Pro Gly Ser Pro Gly Pro 85 90 95

Ala Gly Leu Lys Gly Glu Arg Gly Ala Pro Gly Pro Gly Gly Ala Ile 100 105 110

Gly Pro Gln Gly Pro Ser Gly Ala Met Gly Pro Pro Gly Leu Lys Gly
115 120 125

Asp Arg Gly Asp Pro Gly Glu Lys Gly Ala Arg Gly Glu Thr Ser Val

| Leu 145 | Glu | Val | Asp | Thr | Leu 150 | Arg | Gln | Arg | Met | Arg 155 | Asn | Leu | Glu | Gly | Glu 160 |
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| Val | Gln | Arg | Leu | Gln 165 | Asn | Ile | Val | Thr | Gln 170 | Tyr | Arg | Lys | Ala | Val 175 | Leu |
| Phe | Pro | Asp | Gly 180 | Gln | Ala | Val | Gly | Glu 185 | Lys | Ile | Phe | Lys | Thr 190 | Ala | Gly |
| Ala | Val | Lys 195 | Ser | Tyr | Ser | Asp | Ala 200 | Glu | Gln | Leu | Cys | Arg 205 | Glu | Ala | Lys |
| Gly | Gln 210 | Leu | Ala | Ser | Pro | Arg 215 | Ser | Ser | Ala | Glu | Asn 220 | Glu | Ala | Val | Thr |
| Gln 225 | Leu | Val | Arg | Ala | Lys 230 | Asn | Lys | His | Ala | Tyr 235 | Leu | Ser | Met | Asn | Asp 240 |
| Ile | Ser | Lys | Glu | Gly 245 | Lys | Phe | Thr | Tyr | Pro 250 | Thr | Gly | Gly | Ser | Leu 255 | Asp |
| Tyr | Ser | Asn | Trp 260 | Ala | Pro | Gly | Glu | Pro 265 | Gly | Asn | Arg | Ala | Lys 270 | Asp | Glu |
| Gly | Pro | Glu 275 | Asn | Cys | Leu | Glu | Ile 280 | Tyr | Ser | Asp | Gly | Asn 285 | Trp | Asn | Asp |
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| Val | Leu | Ser | Thr 20 | Gly | Gly | Trp | Ile | Pro 25 | Arg | Thr | Thr | Asp | Tyr 30 | Ala | Ser |
| Leu | Ile | Pro 35 | Ser | Glu | Val | Pro | Leu 40 | Asp | Thr | Thr | Val | Ala 45 | Glu | Gly | Ser |

| Pr | o Pho 50 | e Pro | Ser | Glu | Leu | Thr 55 | Leu | Glu | Ser | Thr | Val 60 | Ala | Glu | Gly | Ser |
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| Pr 65 | o Ile | e Ser | Leu | Glu | Ser 70 | Thr | Leu | Glu | Thr | Thr 75 | Val | Ala | Glu | Gly | Ser 80 |
| Le | u Ile | e Pro | Ser | Glu 85 | Ser | Thr | Leu | Glu | Ser 90 | Thr | Val | Ala | Glu | Gly 95 | Ser |
| As | p Sei | gly | Leu 100 | Ala | Leu | Arg | Leu | Val 105 | Asn | Gly | Asp | Gly | Arg 110 | Cys | Gln |
| Gl | y Arg | y Val 115 | Glu | Ile | Leu | Tyr | Arg 120 | Gly | Ser | Trp | Gly | Ala 125 | Val | Cys | Asp |
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| Су 14 | _ | , Trp | Ala | Met | Ser 150 | Ala | Pro | Gly | Asn | Ala 155 | Trp | Phe | Gly | Gln | Gly 160 |
| Se | r Gly | Pro | Ile | Ala 165 | Leu | Asp | Asp | Val | Arg 170 | Cys | Ser | Gly | His | Glu 175 | Ser |
| Ty: | r Lei | ı Trp | Ser 180 | Cys | Pro | His | Asn | Gly 185 | Trp | Leu | Ser | His | Asn 190 | Cys | Gly |
| Hi | s Gly | Glu 195 | Asp | Ala | Gly | Val | Ile 200 | Cys | Ser | Ala | Ala | Gln 205 | Pro | Gln | Ser |
| Th | r Leu 210 | | Pro | Glu | Ser | Trp 215 | Pro | Val | Arg | Ile | Ser 220 | Pro | Pro | Val | Pro |
| Th: | | Gly | Ser | Glu | Ser 230 | Ser | Leu | Ala | Leu | Arg 235 | Leu | Val | Asn | Gly | Gly 240 |
| Asj | o Arg | Cys | Arg | Gly 245 | Arg | Val | Glu | Val | Leu 250 | Tyr | Arg | Gly | Ser | Trp 255 | Gly |
| Th: | c Val | Суѕ | Asp 260 | Asp | Tyr | Trp | Asp | Thr 265 | Asn | Asp | Ala | Asn | Val 270 | Val | Cys |
| Arg | g Glr | Leu | Gly | Cys | Gly | Trp | Ala | Met | Ser | Ala | Pro | Gly | Asn | Ala | Gln |

| Phe | Gly 290 | Gln | Gly | Ser | Gly | Pro 295 | Ile | Val | Leu | Asp | Asp 300 | Val | Arg | Cys | Ser |
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| Gly 305 | His | Glu | Ser | Tyr | Leu 310 | Trp | Ser | Cys | Pro | His 315 | Asn | Gly | Trp | Leu | Thr 320 |
| His | Asn | Cys | Gly | His 325 | Ser | Glu | Asp | Ala | Gly 330 | Val | Ile | Cys | Ser | Ala 335 | Pro |
| Gln | Ser | Arg | Pro 340 | Thr | Pro | Ser | Pro | Asp 345 | Thr | Trp | Pro | Thr | Ser 350 | His | Ala |
| Ser | Thr | Ala 355 | Gly | Pro | Glu | Ser | Ser 360 | Leu | Ala | Leu | Arg | Leu 365 | Val | Asn | Gly |
| Gly | Asp 370 | Arg | Cys | Gln | Gly | Arg 375 | Val | Glu | Val | Leu | Tyr 380 | Arg | Gly | Ser | Trp |
| Gly 385 | Thr | Val | Cys | Asp | Asp 390 | Ser | Trp | Asp | Thr | Ser 395 | Asp | Ala | Asn | Val | Val 400 |
| Cys | Arg | Gln | Leu | Gly 405 | Cys | Gly | Trp | Ala | Thr 410 | Ser | Ala | Pro | Gly | Asn 415 | Ala |
| Arg | Phe | Gly | Gln 420 | Gly | Ser | Gly | Pro | Ile 425 | Val | Leu | Asp | Asp | Val 430 | Arg | Cys |
| Ser | Gly | Tyr 435 | Glu | Ser | Tyr | Leu | Trp 440 | Ser | Cys | Pro | His | Asn 445 | Gly | Trp | Leu |
| Ser | His 450 | Asn | Cys | Gln | His | Ser 455 | Glu | Asp | Ala | Gly | Val 460 | Ile | Cys | Ser | Ala |
| Ala 465 | His | Ser | Trp | Ser | Thr 470 | Pro | Ser | Pro | Asp | Thr 475 | Leu | Pro | Thr | Ile | Thr 480 |
| Leu | Pro | Ala | Ser | Thr 485 | Val | Gly | Ser | Glu | Ser 490 | Ser | Leu | Ala | Leu | Arg 495 | Leu |
| Val | Asn | Gly | Gly 500 | Asp | Arg | Суѕ | Gln | Gly 505 | Arg | Val | Glu | Val | Leu 510 | Tyr | Arg |

| Gly | Ser | Trp 515 | _ | Thr | Val | Cys | Asp 520 | | Ser | Trp | Asp | Thr 525 | | Asp | Ala |
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| Asn | Val 530 | Val | Cys | Arg | Gln | Leu 535 | | Cys | Gly | Trp | Ala 540 | | Leu | Ala | Pro |
| Gly 545 | Asn | Ala | Arg | Phe | Gly 550 | Gln | Gly | Ser | Gly | Pro 555 | | Val | Leu | Asp | Asp 560 |
| Val | Arg | Cys | Ser | Gly 565 | Asn | Glu | Ser | Tyr | Leu 570 | _ | Ser | Cys | Pro | His 575 | Asn |
| Gly | Trp | Leu | Ser 580 | His | Asn | Cys | Gly | His 585 | Ser | Glu | Asp | Ala | Gly 590 | Val | Ile |
| Cys | Ser | Gly 595 | Pro | Glu | Ser | Ser | Leu 600 | Ala | Leu | Arg | Leu | Val 605 | Asn | Gly | Gly |
| Asp | Arg 610 | Сув | Gln | Gly | Arg | Val 615 | Glu | Val | Leu | Tyr | Arg 620 | Gly | Ser | Trp | Gly |
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| Arg | Gln | Leu | Gly | Cys 645 | Gly | Trp | Ala | Met | Ser 650 | Ala | Pro | Gly | Asn | Ala 655 | Arg |
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| Gly | His | Glu 675 | Ser | Tyr | Leu | Trp | Ser 680 | Cys | Pro | Asn | Asn | Gly 685 | Trp | Leu | Ser |
| His | Asn 690 | Cys | Gly | His | His | Glu 695 | Asp | Ala | Gly | Val | Ile 700 | Cys | Ser | Ala | Ala |
| Gln 705 | Ser | Arg | Ser | Thr | Pro 710 | Arg | Pro | Asp | Thr | Leu 715 | Ser | Thr | Ile | Thr | Leu 720 |
| Pro | Pro | Ser | Thr | Val 725 | Gly | Ser | Glu | Ser | Ser 730 | Leu | Thr | Leu | Arg | Leu 735 | Val |
| Asn | Gly | Ser | Asp | Arg | Cys | Gln | Gly | Arg | Val | Glu | Val | Leu | Tyr | Arg | Gly |

Ser Trp Gly Thr Val Cys Asp Asp Ser Trp Asp Thr Asn Asp Ala Asn 755 760 765

Val Val Cys Arg Gln Leu Gly Cys Gly Trp Ala Thr Ser Ala Pro Gly 770 775 780

Asn Ala Arg Phe Gly Gln Gly Ser Gly Pro Ile Val Leu Asp Asp Val
785 790 795 800

Arg Cys Ser Gly His Glu Ser Tyr Leu Trp Ser Cys Pro His Asn Gly 805 810 815

Trp Leu Ser His Asn Cys Gly His His Glu Asp Ala Gly Val Ile Cys 820 825 830

Ser Val Ser Gln Ser Arg Pro Thr Pro Ser Pro Asp Thr Trp Pro Thr 835 840 845

Ser His Ala Ser Thr Ala Gly Pro Glu Ser Ser Leu Ala Leu Arg Leu 850 855 860

Val Asn Gly Gly Asp Arg Cys Gln Gly Arg Val Glu Val Leu Tyr Arg 865 870 875 880

Gly Ser Trp Gly Thr Val Cys Asp Asp Ser Trp Asp Thr Ser Asp Ala 885 890 895

Asn Val Val Cys Arg Gln Leu Gly Cys Gly Trp Ala Thr Ser Ala Pro 900 905 910

Gly Asn Ala Arg Phe Gly Gln Gly Ser Gly Pro Ile Val Leu Asp Asp 915 920 925

Val Arg Cys Ser Gly Tyr Glu Ser Tyr Leu Trp Ser Cys Pro His Asn 930 935 940

Gly Trp Leu Ser His Asn Cys Gln His Ser Glu Asp Ala Gly Val Ile 945 950 955 960

Cys Ser Ala Ala His Ser Trp Ser Thr Pro Ser Pro Asp Thr Leu Pro 965 970 975

- Thr Ile Thr Leu Pro Ala Ser Thr Val Gly Ser Glu Ser Ser Leu Ala 980 985 990
- Leu Arg Leu Val Asn Gly Gly Asp Arg Cys Gln Gly Arg Val Glu Val
 995 1000 1005
- Leu Tyr Gln Gly Ser Trp Gly Thr Val Cys Asp Asp Ser Trp Asp 1010 1015 1020
- Thr Asn Asp Ala Asn Val Val Cys Arg Gln Leu Gly Cys Gly Trp 1025 1030 1035
- Ala Met Ser Ala Pro Gly Asn Ala Arg Phe Gly Gln Gly Ser Gly 1040 1045 1050
- Pro Ile Val Leu Asp Asp Ala Arg Cys Ser Gly His Glu Ser Tyr 1055 1060 1065
- Leu Trp Ser Cys Pro His Asn Gly Trp Leu Ser His Asn Cys Gly 1070 1075 1080
- His Ser Glu Asp Ala Gly Val Ile Cys Ser Ala Ser Gln Ser Arg 1085 1090 1095
- Pro Thr Pro Ser Pro Asp Thr Trp Pro Thr Ser His Ala Ser Thr 1100 1105 1110
- Ala Gly Ser Glu Ser Ser Leu Ala Leu Arg Leu Val Asn Gly Gly 1115 1120 1125
- Asp Arg Cys Gln Gly Arg Val Glu Val Leu Tyr Arg Gly Ser Trp 1130 1135 1140
- Gly Thr Val Cys Asp Asp Tyr Trp Asp Thr Asn Asp Ala Asn Val 1145 1150 1155
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- Val Arg Cys Ser Gly His Glu Ser Tyr Leu Trp Ser Cys Pro His

| 1190 | 1195 | 1200 |
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| | | |

| Asn | Gly 1205 | _ | Leu | Ser | His | Asn 1210 | _ | Gly | His | His | Glu 1215 | _ | Ala | Gly |
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| Thr | Trp 1235 | | Thr | Ser | His | Ala 1240 | | Thr | Ala | Gly | Ser 1245 | | Ser | Ser |
| Leu | Ala 1250 | | Arg | Leu | Val | Asn 1255 | | Gly | Asp | Arg | Cys 1260 | | Gly | Arg |
| Val | Glu 1265 | | Leu | Tyr | Arg | Gly 1270 | | Trp | Gly | Thr | Val 1275 | _ | Asp | Asp |
| Tyr | Trp 1280 | _ | Thr | Asn | Asp | Ala 1285 | | Val | Val | Cys | Arg 1290 | | Leu | Gly |
| Cys | Gly 1295 | _ | Ala | Thr | Ser | Ala 1300 | | Gly | Asn | Ala | Arg 1305 | | Gly | Gln |
| Gly | Ser 1310 | Gly | Pro | Ile | Val | Leu 1315 | Asp | Asp | Val | Arg | Cys 1320 | Ser | Gly | His |
| Glu | Ser 1325 | Tyr | Leu | Trp | Ser | Cys 1330 | Pro | His | Asn | Gly | Trp 1335 | Leu | Ser | His |
| Asn | Cys 1340 | Gly | His | His | Glu | Asp 1345 | Ala | Gly | Val | Ile | Cys 1350 | Ser | Ala | Ser |
| Gln | Ser 1355 | Gln | Pro | Thr | Pro | Ser 1360 | Pro | Asp | Thr | Trp | Pro 1365 | Thr | Ser | His |
| Ala | Ser 1370 | Thr | Ala | Gly | Ser | Glu 1375 | Ser | Ser | Leu | Ala | Leu 1380 | Arg | Leu | Val |
| Asn | Gly 1385 | Gly | Asp | Arg | Cys | Gln 1390 | Gly | Arg | Val | Glu | Val 1395 | Leu | Tyr | Arg |
| Gly | Ser 1400 | Trp | Gly | Thr | Val | Cys 1405 | Asp | Asp | Tyr | Trp | Asp 1410 | Thr | Asn | Asp |

| A | la | Asn 1415 | | Val | Cys | Arg | Gln 1420 | | Gly | Cys | Gly | Trp 1425 | | Thr | Ser |
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| L | eu | Asp 1445 | | Val | Arg | Cys | Ser 1450 | | His | Glu | Ser | Tyr 1455 | | Trp | Ser |
| C | ys | Pro 1460 | | Asn | Gly | Trp | Leu 1465 | | His | Asn | Cys | Gly 1470 | | His | Glu |
| A | sp | Ala 1475 | Gly | Val | Ile | Cys | Ser 1480 | | Phe | Gln | Ser | Gln 1485 | | Thr | Pro |
| S | er | Pro 1490 | Asp | Thr | Trp | Pro | Thr 1495 | | Arg | Ala | Ser | Thr 1500 | | Gly | Ser |
| G | lu | Ser 1505 | Thr | Leu | Ala | Leu | Arg 1510 | Leu | Val | Asn | Gly | Gly 1515 | Asp | Arg | Cys |
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| P | he | Gly 1565 | Gln | Gly | Ser | | Pro 1570 | | Val | | | Asp 1575 | | Arg | Сув |
| S | er | Gly 1580 | His | Glu | Pro | Tyr | Leu 1585 | Trp | Ser | Cys | Pro | His 1590 | Asn | Gly | Trp |
| L | eu | Ser 1595 | His | Asn | Cys | Gly | His 1600 | His | Glu | Asp | Ala | Gly 1605 | Val | Ile | Cys |
| S | er | Ala 1610 | Ala | Gln | Ser | Gln | Ser 1615 | Thr | Pro | Arg | Pro | Asp 1620 | Thr | Trp | Leu |
| Tì | nr | Thr | Asn | Leu | Pro | Ala | Leu, | Thr | Val | Gly | Ser | Glu | Ser | Ser | Leu |

| 1625 | 1630 | 1635 |
|------|------|------|
| | | |

| Ala | Leu 1640 | | Leu | Val | Asn | Gly 1645 | _ | Asp | Arg | Cys | Arg 1650 | _ | Arg | Val |
|-----|-------------|-----|-----|-----|-----|-------------|-------|-----|-----|-----|-------------|-----|-----|-----|
| Glu | Val 1655 | | Tyr | Arg | Gly | Ser 1660 | _ | Gly | Thr | Val | Cys 1665 | _ | Asp | Ser |
| Trp | Asp 1670 | | Asn | Asp | Ala | Asn 1675 | | Val | Cys | Arg | Gln 1680 | | Gly | Cys |
| Gly | Trp 1685 | | Met | Ser | Ala | Pro 1690 | _ | Asn | Ala | Arg | Phe 1695 | - | Gln | Gly |
| Ser | Gly 1700 | | Ile | Val | Leu | Gly 1705 | _ | Val | Arg | Cys | Ser 1710 | _ | Asn | Glu |
| Ser | Tyr 1715 | | Trp | Ser | Cys | Pro 1720 | | Lys | Gly | Trp | Leu 1725 | Thr | His | Asn |
| Cys | Gly 1730 | His | His | Glu | Asp | Ala 1735 | Gly | Val | Ile | Cys | Ser 1740 | Ala | Thr | Gln |
| | 1745 | | | | | Asp 1750 | | | | | 1755 | | | |
| | 1760 | | | | | Asn 1765 | | | | | 1770 | | - | |
| | 1775 | | | | ٠ | Pro 1780 | | | | | 1785 | _ | | |
| | 1790 | _ | | | _ | Glu 1795 | | | | | 1800 | - | - | |
| | 1805 | | _ | | | Asn 1810 | | - | | | 1815 | | | · |
| | 1820 | | | | | Glu 1825 | | | | _ | 1830 | | | |
| Ser | Leu 1835 | Leu | Leu | Gly | Lys | Ile 1840 | Cys . | Asn | Asp | | Arg 1845 | Gln | Ile | Phe |

| Thr | Ser 1850 | | Tyr | Asn | Arg | Met 1855 | | Ile | His | Phe | Arg 1860 | | Asp | Ile |
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| Ser | Phe 1865 | | Asn | Thr | Gly | Phe 1870 | | Ala | Trp | Tyr | Asn 1875 | | Phe | Pro |
| Ser | Asp 1880 | | Thr | Leu | Arg | Leu 1885 | | Asn | Leu | Asn | Ser 1890 | | Tyr | Gly |
| Leu | Cys 1895 | | Gly | Arg | Val | Glu 1900 | | Tyr | His | Gly | Gly 1905 | | Trp | Gly |
| Ala | Val 1910 | | Asp | Asp | Ser | Trp 1915 | | Ile | Gln | Glu | Ala 1920 | | Val | Val |
| Cys | Arg 1925 | | Leu | Gly | Суз | Gly 1930 | | Ala | Val | Ser | Ala 1935 | Leu | Gly | Asn |
| Ala | Tyr 1940 | | Gly | Ser | Gly | Ser 1945 | Gly | Pro | Ile | Thr | Leu 1950 | Asp | Asp | Val |
| Glu | Cys 1955 | | Gly | Thr | Glu | Ser 1960 | | Leu | Trp | Gln | Cys 1965 | Arg | Asn | Arg |
| Gly | Trp 1970 | | Ser | His | Asn | Cys 1975 | Asn | His | Arg | Glu | Asp 1980 | Ala | Gly | Val |
| Ile | Cys 1985 | | Gly | Asn | His | Leu 1990 | Ser | Thr | Pro | | Pro 1995 | Phe | Leu | Asn |
| | Thr 2000 | | Pro | | | Tyr 2005 | | Cys | Gly | | Phe 2010 | | Ser | Gln |
| Pro | Ser 2015 | Gly | Asp | Phe | Ser | Ser 2020 | Pro | Phe | Tyr | Pro | Gly 2025 | Asn | Tyr | Pro |
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| Arg | Val 2045 | Thr | Val | Ile | Phe | Arg 2050 | Asp | Val | Gln | | Glu 2055 | Gly | Gly | Cys |
| Asn | Tyr | Asp | Tyr | Ile | Glu | Val | Phe | Asp | Gly | Pro | Tyr | Arg | Ser | Ser |

| 2060 | 2065 | 2070 |
|------|------|------|
| 2060 | 2005 | 2070 |

| Ser | Ser 2090 | Ser | Asn | Phe | Met | Ser 2095 | | Arg | Phe | Ile | Ser 2100 | | His | Ser |
|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|
| Ile | Thr 2105 | Arg | Arg | Gly | | Arg 2110 | | Glu | Tyr | Tyr | Ser 2115 | | Pro | Ser |
| Asn | Asp 2120 | | Thr | Asn | Leu | Leu 2125 | | Leu | Pro | Asn | His 2130 | Met | Gln | Ala |
| Ser | Val 2135 | | Arg | Ser | Tyr | Leu 2140 | | Ser | Leu | Gly | Phe 2145 | | Ala | Ser |
| Asp | Leu 2150 | | Ile | Ser | Thr | Trp 2155 | Asn | Gly | Tyr | Tyr | Glu 2160 | | Arg | Pro |
| Gln | Ile 2165 | Thr | Pro | Asn | | Val 2170 | | Phe | Thr | Ile | Pro 2175 | | Ser | Gly |
| Cys | Gly 2180 | | Phe | Lys | | Ala 2185 | _ | Asn | Asp | Thr | Ile 2190 | Asp | Tyr | Ser |
| Asn | Leu 2195 | Leu | Thr | Ala | | Val 2200 | Ser | Gly | Gly | Ile | Ile 2205 | Lys | Arg | Arg |
| Thr | Asp 2210 | Leu | Arg | Ile | His | Val 2215 | | Cys | Arg | Met | Leu 2220 | Gln | Asn | Thr |
| Trp | Val 2225 | Asp | Thr | Met | Tyr | Ile 2230 | Ala | Asn | Asp | Thr | Ile 2235 | His | Val | Ala |
| Asn | Asn 2240 | Thr | Ile | Gln | Val | Glu 2245 | Glu | Val | Gln | Tyr | Gly 2250 | Asn | Phe | Asp |
| Val | Asn 2255 | Ile | Ser | Phe | Tyr | Thr 2260 | Ser | Ser | Ser | Phe | Leu 2265 | Tyr | Pro | Val |
| Thr | Ser 2270 | Arg | Pro | Tyr | Tyr | Val 2275 | Asp | Leu | Asn | Gln | Asp 2280 | Leu | Tyr | Val |
| | | | | | | | | | | | | | | |

| Gln | Ala 2285 | | u Il | e Le | u His | 229 | | sp . | Ala | Val | Leu | Thr 2295 | | Phe | Val |
|------------------------------|-------------|-----------|-----------|----------|-------|--------------|-----------|-----------|----------|-------|-------|-------------|-----------|-----------|-----|
| Asp | Thr 2300 | _ | s Va | l Ala | a Ser | 230 | | yr . | Ser | Asn | Asp | Phe 2310 | Thr | Ser | Leu |
| Thr | Tyr 2315 | | o Le | u Ile | e Arg | 3 Ser 232 | | ly (| Cys | Val | Arg | Asp 2325 | Asp | Thr | Tyr |
| Gly | Pro 2330 | | r Se | r Sei | r Pro | Ser 233 | | eu i | Arg | Ile | Ala | Arg 2340 | Phe | Arg | Phe |
| Arg | Ala 2345 | | e Hi | s Phe | e Leu | Asn 235 | | rg 1 | Phe | Pro | | Val 2355 | Tyr | Leu | Arg |
| Cys | Lys 2360 | | : Va | l Val | . Cys | Arg 236 | | la 1 | Гуr | Asp | Pro | Ser 2370 | Ser | Arg | Cys |
| Tyr | Arg 2375 | | r Cys | s Val | . Leu | Arg 238 | | er I | Lys | Arg | Asp | Val 2385 | Gly | Ser | Tyr |
| Gln | Glu 2390 | _ | val | l Asp | Val | Val 239 | | eu C | 3ly | Pro | | Gln 2400 | Leu | Gln | Thr |
| Pro | Pro 2405 | ~ | , Arg | g Glu | ı Glu | Glu 241 | | :O P | Arg | | | | | | |
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| Val | Leu : | Phe | Leu 20 | Leu | Gln : | Ile (| | Ser 25 | . Le | u Gly | y Le | u Asp | Ile 30 | Asp | Ser |
| Arg | | Thr 35 | Ala | Glu | Val (| - | Ala 10 | Thr | His | s Thi | r Il | e Ser 45 | Pro | Gly | Pro |
| | Gly i | Asp | Asp | Gly | | Lys G | Sly . | Asp | Pro | o Gly | g Glu | ı Glu | Gly | Lys | His |

| Gly 65 | Lys | Val | Gly | Arg | Met 70 | Gly | Pro | Lys | Gly | Ile 75 | Lys | Gly | Glu | Leu | Gl _y 80 |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-----------------------|
| Asp | Met | Gly | Asp | Arg 85 | Gly | Asn | Ile | Gly | Lys 90 | Thr | Gly | Pro | Ile | Gly 95 | Lys |
| Lys | Gly | Asp | Lys 100 | Gly | Glu | Lys | Gly | Leu 105 | Leu | Gly | Ile | Pro | Gly 110 | Glu | Lys |
| Gly | Lys | Ala 115 | Gly | Thr | Val | Cys | Asp 120 | Cys | Gly | Arg | Tyr | Arg 125 | Lys | Phe | Val |
| Gly | Gln 130 | Leu | Asp | Ile | Ser | Ile 135 | Ala | Arg | Leu | Lys | Thr 140 | Ser | Met | Lys | Phe |
| Val 145 | Lys | Asn | Val | Ile | Ala 150 | Gly | Ile | Arg | Glu | Thr 155 | Glu | Glu | Lys | Phe | Tyr 160 |
| Tyr | Ile | Val | Gln | Glu 165 | Ģlu | Lys | Asn | Tyr | Arg 170 | Glu | Ser | Leu | Thr | His 175 | Cys |
| Arg | Ile | Arg | Gly 180 | Gly | Met | Leu | Ala | Met 185 | Pro | Lys | Asp | Glu | Ala 190 | Ala | Asn |
| Thr | Leu | Ile 195 | Ala | Asp | Tyr | Val | Ala 200 | Lys | Ser | Gly | Phe | Phe 205 | Arg | Val | Phe |
| Ile | Gly 210 | Val | Asn | Asp | Leu | Glu 215 | Arg | Glu | Gly | Gln | Tyr 220 | Met | Phe | Thr | Asp |
| Asn 225 | Thr | Pro | Leu | Gln | Asn 230 | Tyr | Ser | Asn | Trp | Asn 235 | Glu | Gly | Glu | Pro | Ser 240 |
| Asp | Pro | Tyr | Gly | His 245 | Glu | Asp | Cys | Val | Glu 250 | Met | Leu | Ser | Ser | Gly 255 | Arg |
| Trp | Asn · | Asp | Thr 260 | Glu | Cys | His | Leu | Thr 265 | Met | Tyr | Phe | Val | Cys 270 | Glu | Phe |
| Ile | Lys | Lys 275 | Lys | Lys | | | | | | | | | | | |

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| | Tyr | Ser | Cys | Pro 20 | Ile | Ile | Gln | Cýs | Ser 25 | Ala | Pro | Ala | . Val | Asn 30 | Gly | Leu |
| | Pro | Gly | Arg 35 | Asp | Gly | Arg | Asp | Gly 40 | Pro | Lys | Gly | Glu | Lys 45 | Gly | Asp | Pro |
| | Gly | Glu 50 | Gly | Leu | Arg | Gly | Leu 55 | Gln | Gly | Leu | Pro | Gly 60 | Lys | Ala | Gly | Pro |
| | Gln 65 | Gly | Leu | Lys | Gly | Glu 70 | Val | Gly | Pro | Gln | Gly 75 | Glu | Lys | Gly | Gln | Lys 80 |
| | Gly | Glu | Arg | Gly | Ile 85 | Val | Val | Thr | Asp | Asp 90 | Leu | His | Arg | Gln | Ile 95 | Thr |
| | Asp | Leu | Glu | Ala 100 | Lys | Ile | Arg | Val | Leu 105 | Glu | Asp | Asp | Leu | Ser 110 | Arg | Tyr |
| | Lys | Lys | Ala 115 | Leu | Ser | Leu | Lys | Asp 120 | Val | Val | Asn | Ile | Gly 125 | Lys | Lys | Met |
| | Phe | Val 130 | Ser | Thr | Gly | Lys | Lys 135 | Tyr | Asn | Phe | Glu | Lys 140 | Gly | Lys | Ser | Leu |
| | Cys 145 | Ala | Lys | Ala | Gly | Ser 150 | Val | Leu | Ala | Ser | Pro 155 | Arg | Asn | Glu | Ala | Glu 160 |
| 1 | Asn | Thr | Ala | Leu | Lys 165 | Asp | Leu | Ile | Asp | Pro 170 | Ser | Ser | Gln | Ala | Tyr 175 | Ile |
| (| Gly | Ile | Ser | Asp 180 | Ala | Gln | Thr | Glu | Gly 185 | Arg | Phe | Met | Tyr | Leu 190 | Ser | Gly |
| (| Gly | Pro | Leu 195 | Thr | Tyr | Ser | Asn | Trp 200 | Lys | Pro | Gly | Glu | Pro 205 | Asn | Asn | His |

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Ala Val Lys Ser Tyr Ser Asp Ala Glu Gln Leu Cys Arg Glu Ala Lys 195 200 205

Phe Pro Asp Gly Gln Ala Val Gly Glu Lys Ile Phe Lys Thr Ala Gly

185

| Gly Gln 210 | Leu Ala | Ser | Pro | Arg 215 | Ser | Ser | Ala | Glu | Asn 220 | | Ala | Val | Thr |
|--|---|----------------------------|------------|--------------------------------|--------------------------------|-------------------------|-------------------|--------------------------|-------------------------|--------------------------------|-------------------------|-------------------|--------------------------|
| Gln Leu 225 | Val Arg | | Lys 230 | Asn | Lys | His | Ala | Tyr 235 | Leu | Ser | Met | Asn | Asp 240 |
| Ile Ser | Lys Glu | Gly : 245 | Lys | Phe | Thr | Tyr | Pro 250 | Thr | Gly | Gly | Ser | Leu 255 | Asp |
| Tyr Ser | Asn Trp 260 | | Pro | Gly | Glu | Pro 265 | Gly | Asn | Arg | Ala | Lys 270 | Asp | Glu |
| Gly Pro | Glu Asn 275 | Cys 1 | Leu | Glu | Ile 280 | Tyr | Ser | Asp | Gly | Asn 285 | Trp | Asn | Asp |
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| <400> 38 Met Ser 3 | | | Ser : | Phe | Leu | Leu | Leu 10 | Cys | Val | Val | Thr | Val 15 | Val |
| Met Ser | Ile Phe | Thr S | | | | | 10 | | | | | 15 | |
| Met Ser : 1 Tyr Ala (| Ile Phe Glu Thr 20 | Thr S | Thr (| Glu | Gly | Val 25 | 10 Gln | Asn | Ser | Cys | Pro 30 | 15 Val | Val |
| Met Ser : 1 Tyr Ala (| Ile Phe Glu Thr 20 Ser Ser 35 | Thr S | Thr (| Glu Leu | Gly Asn 40 | Val 25 Gly | 10 Gln Phe | Asn Pro | Ser Gly | Cys Lys 45 | Pro 30 Asp | 15 Val Gly | Val Arg |
| Met Ser : 1 Tyr Ala (Thr Cys S | Ile Phe Glu Thr 20 Ser Ser 35 | Thr 5 Leu 1 Pro 6 | Thr (| Glu Leu Lys 55 | Gly Asn 40 Gly | Val 25 Gly Glu | Gln Phe Pro | Asn Pro Gly | Ser Gly Gln 60 | Cys Lys 45 Gly | Pro 30 Asp | Val Gly Arg | Val Arg Gly |
| Met Ser : Tyr Ala (Thr Cys s Asp Gly F 50 | Ile Phe Glu Thr 20 Ser Ser 35 Ala Lys Gly Pro | Thr S Leu T Pro G Gly G | Thr (| Glu Leu Lys 55 Lys | Gly Asn 40 Gly Val | Val 25 Gly Glu | Gln Phe Pro | Asn Pro Gly Thr | Ser Gly Gln 60 | Cys Lys 45 Gly Pro | Pro 30 Asp Leu | Val Gly Arg | Val Arg Gly Asn |

100 105 110

Ser Glu Leu Arg Ala Leu Arg Asn Trp Val Leu Phe Ser Leu Ser Glu 115 120

Lys Val Gly Lys Lys Tyr Phe Val Ser Ser Val Lys Lys Met Ser Leu 130 135

Asp Arg Val Lys Ala Leu Cys Ser Glu Phe Gln Gly Ser Val Ala Thr

Pro Arg Asn Ala Glu Glu Asn Ser Ala Ile Gln Lys Val Ala Lys Asp

Ile Ala Tyr Leu Gly Ile Thr Asp Val Arg Val Glu Gly Ser Phe Glu 185

Asp Leu Thr Gly Asn Arg Val Arg Tyr Thr Asn Trp Asn Asp Gly Glu 200

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Glu Phe Ser Asp

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Ser Ser Ser Gly Ser Gln Thr Cys Glu Asp Thr Leu Lys Thr Cys Ser 20

Val Ile Ala Cys Gly Arg Asp Gly Arg Asp Gly Pro Lys Gly Glu Lys 35

| Gly | Glu 50 | Pro | Gly | Gln | Gly | Leu 55 | Arg | Gly | Leu | Gln | Gly 60 | Pro | Pro | Gly | Lys |
|------------------------------|-------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Leu 65 | Gly | Pro | Pro | Gly | Ser 70 | Val | Gly | Ser | Pro | Gly 75 | Ser | Pro | Gly | Pro | Lys 80 |
| Gly | Gln | Lys | Gly | Asp 85 | His | Gly | Asp | Asn | Arg 90 | Ala | Ile | Glu | Glu | Lys 95 | Leu |
| Ala | Asn | Met | Glu 100 | Ala | Glu | Ile | Arg | Ile 105 | Leu | Lys | Ser | Lys | Leu 110 | Gln | Leu |
| Thr | Asn | Lys 115 | Leu | His | Ala | Phe | Ser 120 | Met | Gly | Lys | Lys | Ser 125 | Gly | Lys | Lys |
| Leu | Phe 130 | Val | Thr | Asn | His | Glu 135 | Lys | Met | Pro | Phe | Ser 140 | Lys | Val | Lys | Ser |
| Leu 145 | Cys | Thr | Glu | Leu | Gln 150 | Gly | Thr | Val | Ala | Ile 155 | Pro | Arg | Asn | Ala | Glu 160 |
| Glu | Asn | Lys | Ala | Ile 165 | Gln | Glu | Val | Ala | Thr 170 | Gly | Ile | Ala | Phe | Leu 175 | Gly |
| Ile | Thr | Asp | Glu 180 | Ala | Thr | Glu | Gly | Gln 185 | Phe | Met | Tyr | Val | Thr 190 | Gly | Gly |
| Arg | Leu | Thr 195 | Tyr | Ser | Asn | Trp | Lys 200 | Lys | Asp | Glu | Pro | Asn 205 | Asn | His | Gly |
| Ser | Gly 210 | | Asp | Cys | Val | Ile 215 | Ile | Leu | _ | Asn | _ | Leu | Trp | Asn | Asp |
| Ile 225 | Ser | Cys | Gln | Ala | Ser 230 | Phe | Lys | Ala | Val | Cys 235 | Glu | Phe | Pro | Ala | |
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| <400 | | | | | | | | | | | | | | | |
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195

205

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Pro Gly Thr Pro Gly Ser His Gly Leu Pro Gly Arg Asp Gly Arg Asp 35 40 45

Gly Val Lys Gly Asp Pro Gly Pro Pro Gly Pro Leu Gly Pro Pro Gly 50 55 60

Gly Met Pro Gly His Pro Gly Pro Asn Gly Met Thr Gly Ala Pro Gly 65 70 75 80

Val Ala Gly Glu Arg Gly Glu Lys Gly Glu Pro Gly Glu Arg Gly Pro 85 90 95

Pro Gly Leu Pro Ala Ser Leu Asp Glu Glu Leu Gln Thr Thr Leu His
100 105 110

Asp Leu Arg His Gln Ile Leu Gln Thr Met Gly Val Leu Ser Leu His 115 120 125

Glu Ser Leu Leu Val Val Gly Arg Lys Val Phe Ser Ser Asn Ala Gln 130 135 140

Ser Ile Asn Phe Asn Asp Ile Gln Glu Leu Cys Ala Gly Ala Gly Gly 145 150 155 160

Gln Ile Ala Ala Pro Met Ser Pro Glu Glu Asn Glu Ala Val Ala Ser 165 170 175

Ile Val Lys Lys Tyr Asn Thr Tyr Ala Tyr Leu Gly Leu Val Glu Ser 180 185 190

Pro Asp Ser Gly Asp Phe Gln Tyr Met Asp Gly Ala Pro Val Asn Tyr 195 200 205

Thr Asn Trp Tyr Pro Gly Glu Pro Arg Gly Arg Gly Lys Glu Gln Cys 210 215 220

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Tyr Arg Leu Ala Ile Cys Glu Phe 245

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<211>

43

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| Ala 225 | Ser | Leu | Arg | Gln | Gln 230 | Val | Glu | Ala | Leu | Gln 235 | Gly | Gln | Val | Gln | His 240 |
| Leu | Gln | Ala | Ala | Phe 245 | Ser | Gln | Tyr | Lys | Lys 250 | Val | Glu | Leu | Phe | Pro 255 | Asn |
| Gly | Gln | Ser | Val 260 | Gly | Glu | Lys | Ile | Phe 265 | Lys | Thr | Ala | Gly | Phe 270 | Val | Lys |
| Pro | Phe | Thr 275 | Glu | Ala | Gln | Leu | Leu 280 | Cys | Thr | Gln | Ala | Gly 285 | Gly | Gln | Leu |
| Ala | Ser 290 | Pro | Arg | Ser | Ala | Ala 295 | Glu | Asn | Ala | Ala | Leu 300 | Gln | Gln | Leu | Val |
| Val 305 | Ala | Lys | Asn | Glu | Ala 310 | Ala | Phe | Leu | Ser | Met 315 | Thr | Asp | Ser | Lys | Thr 320 |
| Glu | Gly | Lys | Phe | Thr 325 | Tyr | Pro | Thr | Gly | Glu 330 | Ser | Leu | Val | Tyr | Ser 335 | Asn |
| Trp | Ala | Pro | Gly 340 | Glu | Pro | Asn | Asp | Asp 345 | Gly | Gly | Ser | Glu | Asp 350 | Cys | Val |
| Glu | Ile | Phe 355 | Thr | Asn | Gly | Lys | Trp 360 | Asn | Asp | Arg | Ala | Cys 365 | Gly | Glu | Lys |
| Arg | Leu 370 | Val | Val | Cys | Glu | Phe 375 | | | | | | | | • | |
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| Met 1 | Leu | Leu | Leu | Ser 5 | Leu | Ala | Leu | Thr | Leu 10 | Ile | Ser | Ala | Pro | Ala 15 | Ser |

Asp Thr Cys Asp Thr Lys Asp Val Cys Ile Gly Ser Pro Gly Ile Pro

20 25 30

Gly Thr Pro Gly Ser His Gly Leu Pro Gly Arg Asp Gly Arg Asp Gly 35 40 45

Val Lys Gly Asp Pro Gly Pro Pro Gly Pro Met Gly Pro Pro Gly Gly 50 60

Met Pro Gly Leu Pro Gly Arg Asp Gly Leu Ile Gly Ala Pro Gly Val 65 70 75 80

Pro Gly Glu Arg Gly Asp Lys Gly Glu Pro Gly Glu Arg Gly Pro Pro 85 90 95

Gly Leu Pro Ala Tyr Leu Asp Glu Glu Leu Gln Ala Thr Leu His Glu 100 105 110

Leu Arg His His Ala Leu Gln Ser Ile Gly Val Leu Ser Leu Gln Gly
115 120 125

Ser Met Lys Ala Val Gly Glu Lys Ile Phe Ser Thr Asn Gly Gln Ser 130 135 140

Val Asn Phe Asp Ala Ile Arg Glu Val Cys Ala Arg Ala Gly Gly Arg 145 150 155 160

Ile Ala Val Pro Arg Ser Leu Glu Glu Asn Glu Ala Ile Ala Ser Ile 165 170 175

Val Lys Glu Arg Asn Thr Tyr Ala Tyr Leu Gly Leu Ala Glu Gly Pro 180 185 190

Thr Ala Gly Asp Phe Tyr Tyr Leu Asp Gly Asp Pro Val Asn Tyr Thr
195 200 205

Asn Trp Tyr Pro Gly Glu Pro Arg Gly Gln Gly Arg Glu Lys Cys Val 210 215 220

Glu Met Tyr Thr Asp Gly Lys Trp Asn Asp Lys Asn Cys Leu Gln Tyr 225 230 235 240

Arg Leu Val Ile Cys Glu Phe 245

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| | Met 1 | Leu | Pro | Phe | Leu 5 | Ser | Met | Leu | Val | Leu 10 | Leu | . Val | Gln | . Pro | Leu 15 | Gly |
| | Asn | Leu | Gly | Ala 20 | Glu | Met | Lys | Ser | Leu 25 | Ser | Gln | Arg | Ser | Val 30 | Pro | Asn |
| | Thr | Cys | Thr 35 | Leu | Val | Met | Cys | Ser 40 | Pro | Thr | Glu | Asn | Gly 45 | Leu | Pro | Gly |
| | Arg | Asp 50 | Gly | Arg | Asp | Gly | Arg 55 | Glu | Gly | Pro | Arg | Gly 60 | Glu | Lys | Gly | Asp |
| | Pro 65 | Gly | Leu | Pro | Gly | Pro 70 | Met | Gly | Leu | Ser | Gly 75 | Leu | Gln | Gly | Pro | Thr 80 |
| | Gly | Pro | Val | Gly | Pro 85 | Lys | Gly | Glu | Asn | Gly 90 | Ser | Ala | Gly | Glu | Pro 95 | Gly |
| | Pro | Lys | Gly | Glu 100 | Arg | Gly | Leu | Ser | Gly 105 | Pro | Pro | Gly | Leu | Pro 110 | Gly | Ile |
| | Pro | Gly | Pro 115 | Ala | Gly | Lys | Glu | Gly 120 | Pro | Ser | Gly | Lys | Gln 125 | Gly | Asn | Ile |
| , | Gly | Pro 130 | Gln | Gly | Lys | Pro | Gly 135 | Pro | Lys | Gly | Glu | Ala 140 | Gly | Pro | Lys | Gly |
| | Glu 145 | Val | Gly | Ala | Pro | Gly 150 | Met | Gln | Gly | Ser | Thr 155 | Gly | Ala | Lys | Gly | Ser 160 |
| , | Thr | Gly | Pro | Lys | Gly 165 | Glu | Arg | Gly | Ala | Pro 170 | Gly | Val | Gln | Gly | Ala 175 | Pro |
| (| 3ly | Asn | Ala | Gly 180 | Ala | Ala | Gly | Pro | Ala 185 | Gly | Pro | Ala | Gly | Pro 190 | Gln | Gly |
| 1 | Ala | Pro | Gly 195 | Ser | Arg | Gly | Pro | Pro 200 | Gly | Leu | Lys | Gly | Asp 205 | Arg | Gly | Val |

Pro Gly Asp Arg Gly Ile Lys Gly Glu Ser Gly Leu Pro Asp Ser Ala Ala Leu Arg Gln Gln Met Glu Ala Leu Lys Gly Lys Leu Gln Arg Leu 230 Glu Val Ala Phe Ser His Tyr Gln Lys Ala Ala Leu Phe Pro Asp Gly 245 250 Arg Ser Val Gly Asp Lys Ile Phe Arg Thr Ala Asp Ser Glu Lys Pro Phe Glu Asp Ala Gln Glu Met Cys Lys Gln Ala Gly Gly Gln Leu Ala 280 285 Ser Pro Arg Ser Ala Thr Glu Asn Ala Ile Gln Gln Leu Ile Thr 290 295 300 Ala His Asn Lys Ala Ala Phe Leu Ser Met Thr Asp Val Gly Thr Glu 305 310 315 320 Gly Lys Phe Thr Tyr Pro Thr Gly Glu Pro Leu Val Tyr Ser Asn Trp 325 330 335 Ala Pro Gly Glu Pro Asn Asn Gly Gly Ala Glu Asn Cys Val Glu 340 345 Ile Phe Thr Asn Gly Gln Trp Asn Asp Lys Ala Cys Gly Glu Gln Arg 355 360 Leu Val Ile Cys Glu Phe 370 <210> 46 <211> 158 <212> PRT <213> Homo sapiens <400> 46 Glu Ala Glu Ala Gly Ser Val Ala Ser Leu Arg Gln Gln Val Glu Ala

Leu Gln Gly Gln Val Gln His Leu Gln Ala Ala Phe Ser Gln Tyr Lys

20 25 30

Lys Val Glu Leu Phe Pro Asn Gly Gln Ser Val Gly Glu Lys Ile Phe 35 40 45

Lys Thr Ala Gly Phe Val Lys Pro Phe Thr Glu Ala Gln Leu Leu Cys 50 55 60

Thr Gln Ala Gly Gly Gln Leu Ala Ser Pro Arg Ser Ala Ala Glu Asn 65 70 75 80

Ala Ala Leu Gln Gln Leu Val Val Ala Lys Asn Glu Ala Ala Phe Leu 85 90 95

Ser Met Thr Asp Ser Lys Thr Glu Gly Lys Phe Thr Tyr Pro Thr Gly
100 105 110

Glu Ser Leu Val Tyr Ser Asn Trp Ala Pro Gly Glu Pro Asn Asp Asp 115 120 125

Gly Gly Ser Glu Asp Cys Val Glu Ile Phe Thr Asn Gly Lys Trp Asn 130 135 140

Asp Arg Ala Cys Gly Glu Lys Arg Leu Val Val Cys Glu Phe 145 150 155

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<212> PRT

<213> Homo sapiens

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Leu Gln Gly Gln Val Gln His Leu Gln Ala Ala Phe Ser Gln Tyr Lys 20 25 30

Lys Val Glu Leu Phe Pro Asn Gly Gln Ser Val Gly Glu Lys Ile Phe 35 40 45

Lys Thr Ala Gly Phe Val Lys Pro Phe Thr Glu Ala Gln Leu Leu Cys 50 55 60

Thr Gln Ala Gly Gly Gln Leu Ala Ser Pro Arg Ser Ala Ala Glu Asn 70 Ala Ala Leu Gln Gln Leu Val Val Ala Lys Asn Glu Ala Ala Phe Leu 90 Ser Met Thr Asp Ser Lys Thr Glu Gly Lys Phe Thr Tyr Pro Thr Gly 100 105 Glu Ser Leu Val Tyr Ser Asn Trp Ala Pro Gly Glu Pro Asn Asp Asp 120 Gly Gly Ser Glu Asp Cys Val Glu Ile Phe Thr Asn Gly Lys Trp Asn 135 140 Asp Arg Ala Cys Gly Glu Lys Arg Leu Val Val Cys Glu Phe 150 <210> 48 <211> 158 <212> PRT <213> Homo sapiens <400> 48 Glu Ala Glu Ala Gly Ser Val Ala Ser Leu Arg Gln Gln Val Glu Ala Leu Gln Gly Gln Val Gln His Leu Gln Ala Ala Phe Ser Gln Tyr Lys Lys Val Glu Leu Phe Pro Asn Gly Gln Ser Val Gly Glu Lys Ile Phe 40 Lys Thr Ala Gly Phe Val Lys Pro Phe Thr Glu Ala Gln Leu Leu Cys Thr Gln Ala Gly Gln Leu Ala Ser Pro Arg Ser Ala Ala Glu Asn 70 Ala Ala Leu Gln Gln Leu Val Val Ala Lys Asn Glu Ala Ala Phe Leu 85 Ser Met Thr Asp Ser Lys Thr Glu Gly Lys Phe Thr Tyr Pro Thr Gly

105

| Glu | Ser | Leu 115 | Val | Tyr | Ser | Asn | Trp 120 | Ala | Pro | Gly | Glu | Pro 125 | | Asp | Asp |
|------------------------------|--------------|---------------------------|------------|-----------|------------|------------|------------|------------|-----------|------------|------------|------------|------------|-----------|------------|
| Gly | Gly 130 | Ser | Glu | Asp | Cys | Val 135 | Glu | Ile | Phe | Thr | Asn 140 | Gly | Lys | Trp | Asn |
| Asp 145 | Arg | Ala | Cys | Gly | Glu 150 | Lys | Arg | Leu | Val | Val 155 | Cys | Glu | Phe | | |
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| Val | Leu | Ser | Thr 20 | Gly | Gly | Trp | Ile | Pro 25 | Arg | Thr | Thr | Asp | Tyr 30 | Ala | Ser |
| Leu | Ile | Pro 35 | Ser | Glu | Val | Pro | Leu 40 | Asp | Thr | Thr | Val | Ala 45 | Gļu | Gly | Ser |
| Pro | Phe 50 | Pro | Ser | Glu | Leu | Thr 55 | Leu | Glu | Ser | Thr | Ala 60 | Ala | Glu | Gly | Ser |
| Pro 65 | Ile | Ser | Leu | Glu | Ser 70 | Thr | Leu | Glu | Ser | Thr 75 | Val | Ala | Glu | Gly | Ser 80 |
| Leu | Ile | Pro | Ser | Glu 85 | Ser | Thr | Leu | Glu | Ser 90 | Thr | Val | Ala | Glu | Gly 95 | Ser |
| Asp | Ser | Gly | Leu 100 | Ala | Leu | Arg | Leu | Val 105 | Asn | Gly | Asp | Gly | Arg 110 | Cys | Gln |
| Gly | Arg | Val 115 | Glu | Ile | Leu | Tyr | Arg 120 | Gly | Ser | Trp | Gly | Thr 125 | Val | Cys | Asp |
| Asp | Ser 130 | Trp | Asp | Thr | Asn | Asp 135 | Ala | Asn | Val | Val | Cys 140 | Arg | Gln | Leu | Gly |
| Cys 145 | Gly | Trp | Ala | Met | Ser 150 | Ala | Pro | Gly | Asn | Ala 155 | Trp | Phe | Gly | Gln | Gly 160 |

| Ser | Gly | Pro | Ile | Ala 165 | Leu | Asp | Asp | Val | Arg 170 | _ | Ser | Gly | / His | Glu 175 | |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Tyr | Leu | Trp | Ser 180 | Cys | Pro | His | Asn | Gly 185 | _ | Leu | Ser | His | 190 | _ | Gly |
| His | Gly | Glu 195 | Asp | Ala | Gly | Val | Ile 200 | Cys | Ser | Ala | Ala | Gln 205 | Pro | Gln | Ser |
| Thr | Leu 210 | Arg | Pro | Glu | Ser | Trp 215 | Pro | Val | Arg | Ile | Ser 220 | | Pro | Val | Pro · |
| Thr 225 | Glu | Gly | Ser | Glu | Ser 230 | Ser | Leu | Ala | Leu | Arg 235 | Leu | Val | Asn | Gly | Gly 240 |
| Asp | Arg | Cys | Arg | Gly 245 | Arg | Val | Glu | Val | Leu 250 | Tyr | Arg | Gly | Ser | Trp 255 | _ |
| Thr | Val | Cys | Asp 260 | Asp | Tyr | Trp | Asp | Thr 265 | Asn | Asp | Ala | Asn | Val 270 | Val | Cys |
| Arg | Gln | Leu 275 | Gly | Cys | Gly | Trp | Ala 280 | Met | Ser | Ala | Pro | Gly 285 | Asn | Ala | Gln |
| Phe | Gly 290 | Gln | Gly | Ser | Gly | Pro 295 | Ile | Val | Leu | Asp | Asp 300 | Val | Arg | Cys | Ser |
| Gly 305 | His | Glu | Ser | Tyr | Leu 310 | Trp | Ser | Cys | Pro | His 315 | Asn | Gly | Trp | Leu | Thr 320 |
| His | Asn | Cys | Gly | His 325 | Ser | Glu | Asp | Ala | Gly 330 | Val | Ile | Cys | Ser | Ala 335 | Pro |
| Leu | Ser | Arg | Pro 340 | Thr | Pro | Ser | Pro | Asp 345 | Thr | Trp | Pro | Thr | Ser 350 | His | Ala |
| Ser | Thr | Ala 355 | Gly | Pro | Glu | Ser | Ser 360 | Leu | Ala | Leu | Arg | Leu 365 | Val | Asn | Gly |
| Gly | Asp 370 | Arg | Cys | Gln | | Arg 375 | Val | Glu | Val | Leu | Tyr 380 | Arg | Gly | Ser | Trp |

| Gly 385 | | Val | . Cys | Asp | 390 | | Trp | Asp | Thr | 395 | _ | o Ala | a Asr | ı Val | l Val 400 |
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| Cys | Arg | Gln | Leu | Gly 405 | | Gly | 7 Trp | Ala | Thr 410 | | Ala | a Pro | Gly | 415 | |
| Arg | Phe | Gly | Gln 420 | | Ser | Gly | Pro | Ile 425 | | . Leu | ı Asp | Asp | Val 430 | _ | ı Cys |
| Ser | Gly | Tyr 435 | | Ser | Tyr | Leu | Trp 440 | | Cys | Pro | His | 445 | _ | Trp | Leu |
| Ser | His 450 | Asn | Cys | Gln | His | Ser 455 | Glu | Asp | Ala | Gly | Val 460 | | : Cys | Ser | Asp |
| Thr 465 | Leu | Pro | Thr | Ile | Thr 470 | Leu | Pro | Ala | Ser | Thr 475 | | Gly | Ser | Glu | Ser 480 |
| Ser | Leu | Ala | Leu | Arg 485 | Leu | Val | Asn | Gly | Gly 490 | | Arg | Cys | Gln | Gly 495 | _ |
| Val | Glu | Val | Leu 500 | Tyr | Arg | Gly | Ser | Trp 505 | Gly | Thr | Val | Cys | Asp 510 | Asp | Ser |
| Trp | Asp | Thr 515 | Asn | Asp | Ala | Asn | Val 520 | Val | Cys | Arg | Gln | Leu 525 | Gly | Cys | Gly |
| Trp | Ala 530 | Met | Leu | Ala | Pro | Gly 535 | Asn | Ala | Arg | Phe | Gly 540 | Gln | Gly | Ser | Gly |
| Pro 545 | Ile | Val | Leu | Asp | Asp 550 | Val | Arg | Cys | Ser | Gly 555 | Asn | Glu | Ser | Tyr | Leu 560 |
| Trp | Ser | Cys | Pro | His 565 | Asn | Gly | Trp | Leu | Ser 570 | His | Asn | Cys | Gly | His 575 | Ser |
| Glu | Asp | Ala | Gly 580 | Val | Ile | Cys | Ser | Gly 585 | Pro | Glu | Ser | Ser | Leu 590 | Ala | Leu |
| Gly | Leu | Val 595 | Asn | Gly | Gly | Asp | Arg 600 | Cys | Gln | Gly | Arg | Val 605 | Glu | Val | Leu |
| Tyr | Arg 610 | Gly | Ser | Trp | Gly | Thr 615 | Val | Cys | Asp | Asp | Ser 620 | Trp | Asp | Thr | Asn |

| Asp 625 | Ala | Asn | Val | Val | Cys 630 | Arg | Gln | Leu | Gly | Cys 635 | Gly | Trp | Ala | Thr | Ser 640 |
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| Ala | Pro | Gly | Asn | Ala 645 | Arg | Phe | Gly | Gln | Gly 650 | Ser | Gly | Pro | Ile | Val 655 | Leu |
| Asp | Asp | Val | Arg 660 | Cys | Ser | Gly | His | Glu 665 | Ser | Tyr | Leu | Trp | Ser 670 | Cys | Pro |
| Asn | Asn | Gly 675 | Trp | Leu | Ser | His | Asn 680 | Cys | Gly | His | His | Glu 685 | Asp | Ala | Gly |
| Val | Ile 690 | Cys | Ser | Ala | Ala | Gln 695 | Ser | Arg | Ser | Thr | Pro 700 | Arg | Pro | Asp | Thr |
| Leu 705 | Ser | Thr | Ile | Thr | Leu 710 | Pro | Pro | Ser | Thr | Val 715 | Gly | Ser | Glu | Ser | Ser 720 |
| Leu | Thr | Leu | Arg | Leu 725 | Val | Asn | Gly | Ser | Asp 730 | Arg | Cys | Gln | Gly | Arg 735 | Val |
| Glu | Val | Leu | Tyr 740 | Arg | Gly | Ser | Trp | Gly 745 | Thr | Val | Cys | Asp | Asp 750 | Ser | Trp |
| Asp | Thr | Asn 755 | Asp | Ala | Asn | Val | Val 760 | Cys | Arg | Gln | Leu | Gly 765 | Cys | Gly | Trp |
| Ala | Thr 770 | Ser | Ala | Pro | Gly | Asn 775 | Ala | Arg | Phe | Gly | Gln 780 | Gly | Ser | Gly | Pro |
| Ile 785 | Val | Leu | Asp | Asp | Val 790 | Arg | Cys | Ser | Gly | His 795 | Glu | Ser | Tyr | Leu | Trp 800 |
| Ser | Cys | Pro | His | Asn 805 | Gly | Trp | Leu | Ser | His 810 | Asn | Cys | Gly | His | His 815 | Glu |
| Asp | Ala | Gly | Val 820 | Ile | Cys | Ser | Val | Ser 825 | Gln | Ser | Arg | Pro | Thr 830 | Pro | Ser |
| Pro | Asp | Thr | Trp | Pro | Thr | | His | Ala | Ser | Thr | | Gly | Ser | Glu | Ser |

| Ser | Leu 850 | Ala | Leu | Arg | Leu | Val 855 | Asn | Gly | Gly | Asp | Arg 860 | Cys | Gln | Gly | Arg |
|------------|-------------|------------|------------|------------|------------|------------|-------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Val 865 | Glu | Val | Leu | Tyr | Arg 870 | Gly | Ser | Trp | Gly | Thr 875 | Val | Cys | Asp | Asp | Ser 880 |
| Trp | Asp | Thr | Ser | Asp 885 | Ala | Asn | Val | Val | Cys 890 | Arg | Arg | Leu | Gly | Cys 895 | Gly |
| Trp | Ala | Thr | Ser 900 | Ala | Pro | Gly | Asn | Ala 905 | Arg | Phe | Gly | Gln | Gly 910 | Ser | Gly |
| Pro | Ile | Val 915 | Leu | Asp | Asp | Val | Arg 920 | Cys | Ser | Gly | Tyr | Glu 925 | Ser | Tyr | Leu |
| Trp | Ser 930 | Cys | Pro | His | Asn | Gly 935 | Trp | Leu | Ser | His | Asn 940 | Cys | Gln | His | Ser |
| Glu 945 | Asp | Ala | Gly | Val | Ile 950 | Cys | Ser | Ala | Ala | His 955 | Ser | Trp | Ser | Thr | Pro 960 |
| Ser | Pro | Asp | Thr | Leu 965 | Pro | Thr | Ile | Thr | Leu 970 | Pro | Ala | Ser | Thr | Val 975 | Gly |
| Ser | Glu | Ser | Ser 980 | Leu | Ala | Leu | Arg | Leu 985 | Val | Asn | Gly | Gly | Asp 990 | Arg | Cys |
| Gln | Gly | Arg 995 | Val | Glu | Val | Leu | Tyr 1000 | | ı Gly | Ser | Trp | Gly 100 | | nr Va | al Cys |
| Asp | Asp 1010 | | Trp | Asp | | | As .5 | _ | a As | n Va | l Va 10 | | Cys A | rg (| 3ln |
| Leu | Gly 1025 | _ | Gly | Trp | Ala | Met | | r Al | a Pr | o Gl | | n A | Ala A | rg I | he |
| Gly | Gln 1040 | _ | Ser | · Gly | Pro | Ile 104 | | l Le | u As | p As | | 1 A 50 | rg C | ys S | Ser |
| Gly | His 1055 | | Ser | туr | Leu | Trp 106 | | r Cy | s Pr | o Hi | s As 10 | | ly T | rp I | eu |
| Ser | His 1070 | | Cys | Gly | His | Ser | | u As | p Al | a Gl | y Va 10 | | le C | ys S | er |

| Ala | Ser 1085 | | Ser | Arg | Pro | Thr 1090 | | Ser | Pro | Asp | Thr 1095 | | Pro | Thr |
|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|
| Ser | His 1100 | | Ser | Thr | Ala | Gly 1105 | | Glu | Ser | Ser | Leu 1110 | | Leu | Arg |
| Leu | Val 1115 | | Gly | Gly | Asp | Arg 1120 | | Gln | Gly | Arg | Val 1125 | | Val | Leu |
| Tyr | Arg 1130 | _ | Ser | Trp | Gly | Thr 1135 | | Cys | Asp | Asp | Tyr 1140 | _ | Asp | Thr |
| Asn | Asp 1145 | Ala | Asn | Val | Val | Cys 1150 | _ | Gln | Leu | Gly | Cys 1155 | Gly | Trp | Ala |
| Met | Ser 1160 | Ala | Pro | Gly | Asn | Ala 1165 | Arg | Phe | Gly | Gln | Gly 1170 | Ser | Gly | Pro |
| Ile | Val 1175 | Leu | Asp | Asp | Val | Arg 1180 | Суз | Ser | Gly | His | Glu 1185 | Ser | Tyr | Leu |
| Trp | Ser 1190 | Cys | Pro | His | Asp | Gly 1195 | Trp | Leu | Ser | His | Asn 1200 | Cys | Gly | His |
| His | Glu 1205 | Asp | Ala | Gly | Val | Ile 1210 | Сув | Ser | Ala | Ser | Gln 1215 | Ser | Gln | Pro |
| Thr | Pro 1220 | Ser | Pro | Asp | Thr | Trp 1225 | Pro | Thr | Ser | His | Ala 1230 | Ser | Thr | Ala |
| Gly | Ser 1235 | Glu | Ser | Ser | | Ala 1240 | | Arg | Leu | | Asn 1245 | | Gly | Asp |
| Arg | Cys 1250 | Gln | Gly | Arg | Val | Glu 1255 | Val | Leu | Tyr | Arg | Gly 1260 | Pro | Trp | Gly |
| Thr | Val 1265 | Cys | Asp | Asp | Tyr | Trp 1270 | Asp | Thr | Asn | Asp | Ala 1275 | Asn | Val | Val |
| Cys | Arg 1280 | Gln | Leu | Gly | Cys | Gly 1285 | Trp | Ala | Thr | Ser | Ala 1290 | Pro | Gly | Asn |

| Ala | Arg 1295 | | Gly | Gln | Gly | Ser 1300 | | Pro | Ile | Val | Leu 1305 | _ | Asp | Val |
|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|
| Arg | Cys 1310 | | Gly | His | Glu | Ser 1315 | _ | Leu | Trp | Ser | Cys 1320 | | His | Asn |
| Gly | Trp 1325 | | Ser | His | Asn | Cys 1330 | | His | His | Glu | Asp 1335 | | Gly | Val |
| Ile | Cys 1340 | | Ala | Ser | Gln | Ser 1345 | | Pro | Thr | Pro | Ser 1350 | | Asp | Thr |
| Trp | Pro 1355 | | Ser | His | Ala | Ser 1360 | | Ala | Gly | Ser | Glu 1365 | | Ser | Leu |
| Ala | Leu 1370 | | Leu | Val | Asn | Gly 1375 | | Asp | Arg | Cys | Gln 1380 | | Arg | Val |
| Glu | Val 1385 | | Tyr | Arg | Gly | Ser 1390 | | Gly | Thr | Val | Cys 1395 | | Asp | Tyr |
| Trp | Asp 1400 | | Asn | Asp | Ala | Asn 1405 | Val | Val | Cys | Arg | Gln 1410 | Leu | Gly | Cys |
| Gly | Trp 1415 | | Thr | Ser | Ala | Pro 1420 | Gly | Ser | Ala | Arg | Phe 1425 | Gly | Gln | Gly |
| Ser | Gly 1430 | Pro | Ile | Ala | Leu | Asp 1435 | Asp | Val | Arg | Cys | Ser 1440 | Gly | His | Glu |
| Ser | Tyr 1445 | Leu | Trp | Ser | Cys | Pro 1450 | His | Asn | Gly | Trp | Leu 1455 | Ser | His | Asn |
| Cys | Gly 1460 | His | His | Glu | Asp | Ala 1465 | Gly | Val | Ile | Cys | Ser 1470 | Ala | Ser | Gln |
| Ser | Gln 1475 | Pro | Thr | Pro | Ser | Pro 1480 | Asp | Thr | Trp | Pro | Thr 1485 | Ser | Arg | Ala |
| Ser | Thr 1490 | Ala | Gly | Ser | Glu | Ser 1495 | Thr | Leu | Ala | Leu | Arg 1500 | Leu | Val | Asn |
| Gly | Gly 1505 | Asp | Arg | Cys | Arg | Gly 1510 | Arg | Val | Glu | Val | Leu 1515 | Tyr | Gln | Gly |

| Ser | Trp 1520 | _ | Thr | Val | Cys | Asp 1525 | | Tyr | Trp | Asp | Thr 1530 | | Asp | Ala |
|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|
| Asn | Val 1535 | | Cys | Arg | Gln | Leu 1540 | | Cys | Gly | Trp | Ala 1545 | | Ser | Ala |
| Pro | Gly 1550 | | Ala | Gln | Phe | Gly 1555 | | Gly | Ser | Gly | Pro 1560 | | Val | Leu |
| Asp | Asp 1565 | | Arg | Cys | Ser | Gly 1570 | | Glu | Ser | Tyr | Leu 1575 | | Ser | Cys |
| Pro | His 1580 | | Gly | Trp | Leu | Ser 1585 | His | Asn | Cys | Gly | His 1590 | | Glu | Asp |
| Ala | Gly 1595 | | Ile | Cys | Ser | Ala 1600 | | Gln | Ser | Gln | Ser 1605 | | Pro | Arg |
| Pro | Asp 1610 | Thr | Trp | Leu | Thr | Thr 1615 | | Leu | Pro | Ala | Leu 1620 | Thr | Val | Gly |
| Ser | Glu 1625 | Ser | Ser | Leu | Ala | Leu 1630 | | Leu | Val | Asn | Gly 1635 | Gly | Asp | Arg |
| Cys | Arg 1640 | Gly | Arg | Val | Glu | Val 1645 | Leu | Tyr | Arg | Gly | Ser 1650 | Trp | Gly | Thr |
| Val | Cys 1655 | Asp | Asp | Ser | Trp | Asp 1660 | Thr | Asn | Asp | Ala | Asn 1665 | Val | Val | Cys |
| _ | Gln 1670 | | | | | Trp 1675 | | | | | | | Asn | Ala |
| Arg | Phe 1685 | Gly | Gln | Gly | Ser | Gly 1690 | Pro | Ile | Val | Leu | Asp 1695 | Asp | Val | Arg |
| Cys | Ser 1700 | Gly | Asn | Glu | Ser | Tyr 1705 | Leu | Trp | Ser | Cys | Pro 1710 | His | Lys | Gly |
| Trp | Leu 1715 | Thr | His | Asn | Cys | Gly 1720 | His | His | Glu | Asp | Ala 1725 | Gly | Val | Ile |

| Cys | Ser 1730 | | Thr | Gln | Ile | Asn 1735 | | Thr | Thr | Thr | Asp 1740 | _ | Trp | His |
|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|
| Pro | Thr 1745 | | Thr | Thr | Thr | Ala 1750 | | Pro | Ser | Ser | Asn 1755 | _ | Gly | Gly |
| Phe | Leu 1760 | | Tyr | Ala | Ser | Gly 1765 | | Phe | Ser | Ser | Pro 1770 | | Tyr | Pro |
| Дlа | Tyr 1775 | | Pro | Asn | Asn | Ala 1780 | | Cys | Val | Trp | Glu 1785 | | Glu | Val |
| Asn | Ser 1790 | | Tyr | Arg | Ile | Asn 1795 | | Gly | Phe | Ser | Asn 1800 | | Lys | Leu |
| Glu | Ala 1805 | | His | Asn | Cys | Ser 1810 | | Asp | Tyr | Val | Glu 1815 | | Phe | Asp |
| Gly | Ser 1820 | Leu | Asn | Ser | Ser | Leu 1825 | | Leu | Gly | Lys | Ile 1830 | Cys | Asn | Asp |
| Thr | Arg 1835 | | Ile | Phe | Thr | Ser 1840 | Ser | Tyr | Asn | Arg | Met 1845 | Thr | Ile | His |
| Phe | Arg 1850 | Ser | Asp | Ile | Ser | Phe 1855 | Gln | Asn | Thr | Gly | Phe 1860 | Leu | Ala | Trp |
| Tyr | Asn 1865 | Ser | Phe | Pro | Ser | Asp 1870 | Ala | Thr | Leu | Arg | Leu 1875 | Val | Asn | Leu |
| Asn | Ser 1880 | Ser | Tyr | Gly | Leu | Cys 1885 | Ala | Gly | Arg | | Glu 1890 | | Tyr | His |
| Gly | Gly 1895 | Thr | Trp | Gly | Thr | Val 1900 | Cys | Asp | Asp | Ser | Trp 1905 | Thr | Ile | Gln |
| Glu | Ala 1910 | Glu | Val | Val | Cys | Arg 1915 | Gln | Leu | Gly | Cys | Gly 1920 | Arg | Ala | Val |
| Ser | Ala 1925 | Leu | Gly | Asn | Ala | Tyr 1930 | Phe | Gly | Ser | Gly | Ser 1935 | Gly | Pro | Ile |
| Thr | Leu 1940 | Asp | Asp | Val | Glu | Cys 1945 | Ser | Gly | Thr | Glu | Ser 1950 | Thr | Leu | Trp |

| Gln | Cys 1955 | | Asn | Arg | Gly | Trp 1960 | | Ser | His | Asn | Cys 1965 | | His | : Arg |
|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-------|
| Glu | Asp 1970 | | Gly | Val | Ile | Cys 1975 | | Gly | Asn | His | Leu 1980 | | Thr | Pro |
| Ala | Pro 1985 | | Leu | Asn | Ile | Thr 1990 | | Pro | Asn | Thr | Asp 1995 | _ | Ser | Cys |
| Gly | Gly 2000 | | Leu | Ser | Gln | Pro 2005 | | Gly | Asp | Phe | Ser 2010 | | Pro | Phe |
| Tyr | Pro 2015 | | Asn | Tyr | Pro | Asn 2020 | | Ala | Lys | Cys | Val 2025 | _ | Asp | Ile |
| Glu | Val 2030 | | Asn | Asn | Tyr | Arg 2035 | | Thr | Val | Ile | Phe 2040 | Arg | Asp | Val |
| Gln | Leu 2045 | | Gly | Gly | Сув | Asn 2050 | | Asp | Tyr | Ile | Glu 2055 | | Phe | Asp |
| Gly | Pro 2060 | | Arg | Ser | | Pro 2065 | Leu | Ile | Ala | Arg | Val 2070 | Cys | Asp | Gly |
| Ala | Arg 2075 | | Ser | Phe | | Ser 2080 | Ser | Ser | Asn | Phe | Met 2085 | Ser | Ile | Arg |
| Phe | Ile 2090 | Ser | Asp | His | Ser | Ile 2095 | Thr | Arg | Arg | Gly | Phe 2100 | Arg | Ala | Glu |
| Tyr | Tyr 2105 | Ser | Ser | Pro | Ser | Asn 2110 | Asp | Ser | Thr | Asn | Leu 2115 | Leu | Cys | Leu |
| Pro | Asn 2120 | His | Met | Gln | Ala | Ser 2125 | Val | Ser | Arg | Ser | Tyr 2130 | Leu | Gln | Ser |
| Leu | Gly 2135 | Phe | Ser | Ala | Ser | Asp 2140 | Leu | Val | Ile | Ser | Thr 2145 | Trp | Asn | Gly |
| Tyr | Tyr 2150 | Glu | Cys | Arg | | Gln 2155 | Ile | Thr | Pro | Asn | Leu 2160 | Val | Ile | Phe |

| Thr | Ile 2165 | | Tyr | Ser | Gly | Cys 2170 | | Thr | Phe | Lys | Gln 2175 | | Asp | Asn |
|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|
| Asp | Thr 2180 | | Asp | Tyr | Ser | Asn 2185 | | Leu | Thr | Ala | Ala 2190 | | Ser | Gly |
| Gly | Ile 2195 | | Lys | Arg | Arg | Thr 2200 | _ | Leu | Arg | Ile | His 2205 | | Ser | Cys |
| Arg | Met 2210 | | Gln | Asn | Thr | Trp 2215 | | Asp | Thr | Met | Tyr 2220 | | Ala | Asn |
| Asp | Thr 2225 | | His | Val | Ala | Asn 2230 | | Thr | Ile | Gln | Val 2235 | | Glu | Val |
| Gln | Tyr 2240 | _ | Asn | Phe | Asp | Val 2245 | | Ile | Ser | Phe | Tyr 2250 | | Ser | Ser |
| Ser | Phe 2255 | Leu | Tyr | Pro | Val | Thr 2260 | | Arg | Pro | Tyr | Tyr 2265 | | Asp | Leu |
| Asn | Gln 2270 | _ | Leu | Tyr | Val | Gln 2275 | Ala | Glu | Ile | Leu | His 2280 | | Asp | Ala |
| Val | Leu 2285 | Thr | Leu | Phe | Val | Asp 2290 | | Cys | Val | Ala | Ser 2295 | | Tyr | Ser |
| Asn | Asp 2300 | Phe | Thr | Ser | Leu | Thr 2305 | Tyr | Asp | Leu | Ile | Arg 2310 | Ser | Gly | Cys |
| Val | Arg 2315 | Asp | Asp | Thr | Tyr | Gly 2320 | Pro | Tyr | Ser | Ser | Pro 2325 | Ser | Leu | Arg |
| Ile | Ala 2330 | Arg | Phe | Arg | Phe | Arg 2335 | Ala | Phe | His | Phe | Leu 2340 | Asn | Arg | Phe |
| Pro | Ser 2345 | Val | Tyr | Leu | Arg | Cys 2350 | Lys | Met | Val | Val | Cys 2355 | Arg | Ala | Tyr |
| Asp | Pro 2360 | Ser | Ser | Arg | Cys | Tyr 2365 | Arg | Gly | Cys | Val | Leu 2370 | Arg | Ser | Lys |
| Arg | Asp 2375 | Val | Gly | Ser | Tyr | Gln 2380 | Glu | Lys | Val | Asp | Val 2385 | Val | Leu | Gly |

Pro Ile Gln Leu Gln Thr Pro Pro Arg Arg Glu Glu Glu Pro Arg 2390 2395 <210> 50 <211> 2413 <212> PRT <213> Homo sapiens <400> 50 Met Gly Ile Ser Thr Val Ile Leu Glu Met Cys Leu Leu Trp Gly Gln 10 Val Leu Ser Thr Gly Gly Trp Ile Pro Arg Thr Thr Asp Tyr Ala Ser 25 Leu Ile Pro Ser Glu Val Pro Leu Asp Gln Thr Val Ala Glu Gly Ser Pro Phe Pro Ser Glu Ser Thr Leu Glu Ser Thr Ala Ala Glu Gly Ser Pro Ile Ser Leu Glu Ser Thr Leu Glu Ser Thr Val Ala Glu Gly Ser Leu Ile Pro Ser Glu Ser Thr Leu Glu Ser Thr Val Ala Glu Gly Ser Asp Ser Gly Leu Ala Leu Arg Leu Val Asn Gly Asp Gly Arg Cys Gln 100 105 Gly Arg Val Glu Ile Leu Tyr Arg Gly Ser Trp Gly Thr Val Cys Asp 120 Asp Ser Trp Asp Thr Asn Asp Ala Asn Val Val Cys Arg Gln Leu Gly 135 Cys Gly Trp Ala Met Ser Ala Pro Gly Asn Ala Trp Phe Gly Gln Gly 155 150 145 Ser Gly Pro Ile Ala Leu Asp Asp Val Arg Cys Ser Gly His Glu Ser 170 165

Tyr Leu Trp Ser Cys Pro His Asn Gly Trp Leu Ser His Asn Cys Gly

His Gly Glu Asp Ala Gly Val Ile Cys Ser Ala Ala Gln Pro Gln Ser Thr Leu Arg Pro Glu Ser Trp Pro Val Arg Ile Ser Pro Pro Val Pro Thr Glu Gly Ser Glu Ser Ser Leu Ala Leu Arg Leu Val Asn Gly Gly Asp Arg Cys Arg Gly Arg Val Glu Val Leu Tyr Arg Gly Ser Trp Gly Thr Val Cys Asp Asp Tyr Trp Asp Thr Asn Asp Ala Asn Val Val Cys Arg Gln Leu Gly Cys Gly Trp Ala Met Ser Ala Pro Gly Asn Ala Gln Phe Gly Gln Gly Ser Gly Pro Ile Val Leu Asp Asp Val Arg Cys Ser Gly His Glu Ser Tyr Leu Trp Ser Cys Pro His Asn Gly Trp Leu Thr His Asn Cys Gly His Ser Glu Asp Ala Gly Val Ile Cys Ser Ala Pro Gln Ser Arg Pro Thr Pro Ser Pro Asp Thr Trp Pro Thr Ser His Ala Ser Thr Ala Gly Pro Glu Ser Ser Leu Ala Leu Arg Leu Val Asn Gly Gly Asp Arg Cys Gln Gly Arg Val Glu Val Leu Tyr Arg Gly Ser Trp

Gly Thr Val Cys Asp Asp Ser Trp Asp Thr Ser Asp Ala Asn Val Val

Cys Arg Gln Leu Gly Cys Gly Trp Ala Thr Ser Ala Pro Gly Asn Ala

| Arg | Phe | Gly | Gln 420 | _ | Ser | Gly | Pro | Ile 425 | | Leu | Asp | Asp | Val 430 | _ | Cys |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Ser | Gly | Tyr 435 | | Ser | Tyr | Leu | Trp 440 | | Cys | Pro | His | Asn 445 | _ | Trp | Leu |
| Ser | His 450 | Asn | Cys | Gln | His | Ser 455 | | Asp | Ala | Gly | Val 460 | | Cys | Ser | Ala |
| Ala 465 | His | Ser | Trp | Ser | Thr 470 | Pro | Ser | Pro | Asp | Thr 475 | Leu | Pro | Thr | Ile | Thr 480 |
| Leu | Pro | Ala | Ser | Thr 485 | Val | Gly | Ser | Glu | Ser 490 | | Leu | Ala | Leu | Arg 495 | Leu |
| Val | Asn | Gly | Gly 500 | Asp | Arg | Cys | Gln | Gly 505 | Arg | Val | Glu | Val | Leu 510 | Tyr | Arg |
| Gly | Ser | Trp 515 | Gly | Thr | Val | Cys | Asp 520 | Asp | Ser | Trp | Asp | Thr 525 | Asn | Asp | Ala |
| Asn | Val 530 | Val | Cys | Arg | Gln | Leu 535 | Gly | Cys | Gly | Trp | Ala 540 | Met | Leu | Ala | Pro |
| Gly 545 | Asn | Ala | Arg | Phe | Gly 550 | Gln | Gly | Ser | Gly | Pro 555 | Ile | Val | Leu | Asp | Asp 560 |
| Val | Arg | Cys | Ser | Gly 565 | Asn | Glu | Ser | Tyr | Leu 570 | Trp | Ser | Cys | Pro | His 575 | Asn |
| Gly | Trp | Leu | Ser 580 | His | Asn | Cys | Gly | His 585 | Ser | Glu | Asp | Ala | Gly 590 | Val | Ile |
| Cys | Ser | Gly 595 | Pro | Glu | Ser | Ser | Leu 600 | Ala | Leu | Arg | Leu | Val 605 | Asn | Gly | Gly |
| Asp | Arg 610 | Cys | Gln | Gly | Arg | Val 615 | Glu | Val | Leu | Tyr | Arg 620 | Gly | Ser | Trp | Gly |
| Thr 625 | Val | Cys | Asp | Asp | Ser 630 | Trp | Asp | Thr | Asn | Asp 635 | Ala | Asn | Val | Val | Cys 640 |
| | | | | _ | | | | | | _ | | | | | |

Arg Gln Leu Gly Cys Gly Trp Ala Met Ser Ala Pro Gly Asn Ala Arg

Phe Gly Gln Gly Ser Gly Pro Ile Val Leu Asp Asp Val Arg Cys Ser 660 665 670

Gly His Glu Ser Tyr Leu Trp Ser Cys Pro Asn Asn Gly Trp Leu Ser 675 680 685

His Asn Cys Gly His His Glu Asp Ala Gly Val Ile Cys Ser Ala Ala 690 695 700

Gln Ser Arg Ser Thr Pro Arg Pro Asp Thr Leu Ser Thr Ile Thr Leu 705 710 715 720

Pro Pro Ser Thr Val Gly Ser Glu Ser Ser Leu Thr Leu Arg Leu Val 725 730 735

Asn Gly Ser Asp Arg Cys Gln Gly Arg Val Glu Val Leu Tyr Arg Gly
740 745 750

Ser Trp Gly Thr Val Cys Asp Asp Ser Trp Asp Thr Asn Asp Ala Asn 755 760 765

Val Val Cys Arg Gln Leu Gly Cys Gly Trp Ala Met Ser Ala Pro Gly 770 780

Asn Ala Arg Phe Gly Gln Gly Ser Gly Pro Ile Val Leu Asp Asp Val 785 790 795 800

Arg Cys Ser Gly His Glu Ser Tyr Leu Trp Ser Cys Pro His Asn Gly 805 810 815

Trp Leu Ser His Asn Cys Gly His His Glu Asp Ala Gly Val Ile Cys 820 825 830

Ser Val Ser Gln Ser Arg Pro Thr Pro Ser Pro Asp Thr Trp Pro Thr 835 840 845

Ser His Ala Ser Thr Ala Gly Ser Glu Ser Ser Leu Ala Leu Arg Leu 850 855 860

Val Asn Gly Gly Asp Arg Cys Gln Gly Arg Val Glu Val Leu Tyr Arg 865 870 875 880

| Gly | Ser | Trp | Gly | Thr 885 | Val | Cys | Asp | Asp | Ser 890 | Trp | Asp | Thr | Ser | 89 | p Ala 5 | |
|-----|-------------|------------|------------|------------|-----|------------|------------|------------|------------|-------|--------------|------------|------------|-----|------------------|--|
| Asn | Val | Val | Cys 900 | Arg | Gln | Leu | Gly | Cys 905 | Gly | Trp | Ala | Thr | Ser 910 | | a Pro | |
| Gly | Asn | Ala 915 | Arg | Phe | Gly | Gln | Gly 920 | Ser | Gly | Pro | Ile | Val 925 | Leu | As | Q Asp | |
| Val | Arg 930 | Cys | Ser | Gly | Tyr | Glu 935 | Ser | Tyr | Leu | Trp | Ser 940 | Cys | Pro | Hi | s Asn | |
| 945 | | | | | 950 | | | | | 955 | | | | | l Ile 960 | |
| - | | | | 965 | | | ٠. | | 970 | | | _ | | 975 | | |
| | | | 980 | | | | | 985 | | | | | 990 | | ı Ala Slu Val | |
| | Tyr | 995 | | | | | 1000 | | | | | 100 | 5 | | | |
| | 1010 Asn | | | | | 101 | 5 | | | | 10 | 20 | | | | |
| | 1025 Met | | | | | 103 | 0 | | | | 10 y Gl: | 35 | | _ | _ | |
| Pro | 1040 Ile | | Leu | Asp | Asp | 104 Val | | g Cy | s Se: | r Gly | 10! y Hi: | | lu S | Ser | Tyr | |
| Pro | 1055 Trp | | Cys | Pro | His | 106 Asn | | y Trj | p Lei | ı Sei | 100 r His | | sn C | Cys | Gly | |
| | | | | | | | _ | | | | | | | | | |
| His | 1070 Ser | | Asp | Ala | Gly | 107 | | e Cy: | s Sei | r Ala | 108 a Sei | | ln S | er | Arq | |

Pro Thr Pro Ser Pro Asp Thr Trp Pro Thr Ser His Ala Ser Thr

| 1100 | 1105 | 1110 |
|------|------|------|
| | | |

| Ala | Gly 1115 | | Glu | Ser | Ser | Leu 1120 | | Leu | Arg | Leu | Val 1125 | | Gly | gly |
|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-------|
| Asp | Arg 1130 | | Gln | Gly | Arg | Val 1135 | | Val | Leu | Tyr | Arg 1140 | _ | Ser | Trp |
| Gly | Thr 1145 | | Cys | Asp | Asp | Tyr 1150 | | Asp | Thr | Asn | Asp 1155 | | Asn | . Val |
| Val | Cys 1160 | | Gln | Leu | Gly | Cys 1165 | | Trp | Ala | Met | Ser 1170 | | Pro | Gly |
| Asn | Ala 1175 | | Phe | Gly | Gln | Gly 1180 | | Gly | Pro | Ile | Val 1185 | | Asp | Asp |
| Val | Arg 1190 | | Ser | Gly | His | Glu 1195 | | Tyr | Leu | Trp | Ser 1200 | _ | Pro | His |
| Asn | Gly 1205 | Trp | Leu | Ser | His | Asn 1210 | | Gly | His | His | Glu 1215 | | Ala | Gly |
| Val | Ile 1220 | Cys | Ser | Ala | Ser | Gln 1225 | | Gln | Pro | Thr | Pro 1230 | Ser | Pro | Asp |
| Thr | Trp 1235 | Pro | Thr | Ser | His | Ala 1240 | Ser | Thr | Ala | Gly | Ser 1245 | Glu | Ser | Ser |
| Leu | Ala 1250 | Leu | Arg | Leu | | Asn 1255 | - | Gly | Asp | Arg | Cys 1260 | Gln | Gly | Arg |
| Val | Glu 1265 | Val | Leu | Tyr | Arg | Gly 1270 | Ser | Trp | Gly | Thr | Val 1275 | Cys | Asp | Asp |
| Tyr | Trp 1280 | Asp | Thr | Asn | Asp | Ala 1285 | Asn | Val | Val | Cys | Arg 1290 | Gln | Leu | Gly |
| Cys | Gly 1295 | Trp | Ala | Thr | | Ala 1300 | Pro | Gly | Asn | Ala | Arg 1305 | Phe | Gly | Gln |
| | Ser 1310 | Gly | Pro | Ile | Val | Leu 1315 | Asp | Asp | Val | Arg | Cys 1320 | Ser | Gly | His |
| | | | | | | | | | | | | | | |

| Glu | Ser 1325 | _ | Leu | Trp | Ser | Cys 1330 | | His | Asn | Gly | Trp 1335 | | Ser | His |
|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|
| Asn | Cys 1340 | _ | His | His | Glu | Asp 1345 | | Gly | Val | Ile | Cys 1350 | | Ala | Ser |
| Gln | Ser 1355 | | Pro | Thr | Pro | Ser 1360 | | Asp | Thr | Trp | Pro 1365 | | Ser | His |
| Ala | Ser 1370 | | Ala | Gly | Ser | Glu 1375 | | Ser | Leu | Ala | Leu 1380 | _ | Leu | Val |
| Asn | Gly 1385 | - | Asp | Arg | Cys | Gln 1390 | _ | Arg | Val | Glu | Val 1395 | | Tyr | Arg |
| Gly | Ser 1400 | _ | Gly | Thr | Val | Cys 1405 | | Asp | | Trp | Asp 1410 | | Asn | Asp |
| Ala | Asn 1415 | | Val | Cys | Arg | Gln 1420 | | Gly | Cys | Gly | Trp 1425 | Ala | Thr | Ser |
| Ala | Pro 1430 | _ | Asn | Ala | Arg | Phe 1435 | _ | Gln | Gly | Ser | Gly 1440 | Pro | Ile | Val |
| Leu | Asp 1445 | Asp | Val | Arg | Cys | Ser 1450 | Gly | His | Glu | Ser | Tyr 1455 | Leu | Trp | Ser |
| Cys | Pro 1460 | His | Asn | Gly | Trp | Leu 1465 | Ser | His | Asn | Cys | Gly 1470 | His | His | Glu |
| _ | | _ | | | _ | | | | | | Gln 1485 | | Thr | Pro |
| Ser | Pro 1490 | Asp | Thr | Trp | Pro | Thr 1495 | Ser | Arg | Ala | Ser | Thr 1500 | Ala | Gly | Ser |
| Glu | Ser 1505 | Thr | Leu | Ala | Leu | Arg 1510 | Leu | Val | Asn | Gly | Gly 1515 | Asp | Arg | Cys |
| Arg | Gly 1520 | Arg | Val | Glu | Val | Leu 1525 | Tyr | Gln | Gly | Ser | Trp 1530 | Gly | Thr | Val |
| Cys | Asp | Asp | Tyr | Trp | Asp | Thr | Asn | Asp | Ala | Asn | Val | Val | Cys | Arg |

| 1535 | 1540 | 1545 |
|------|------|------|
| | | |

Gln Leu Gly Cys Gly Trp Ala Met Ser Ala Pro Gly Asn Ala Gln

| GIII | 1550 | _ | Cyb | Cly | 115 | 1555 | | 501 | AIA | rio | 1560 | | AIG | GIII | |
|------|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|------|--|
| Phe | Gly 1565 | | Gly | Ser | Gly | Pro 1570 | | Val | Leu | Asp | Asp 1575 | | Arg | Cys | |
| Ser | Gly 1580 | | Glu | Ser | Tyr | Leu 1585 | | Ser | Cys | Pro | His 1590 | | Gly | Trp | |
| Leu | Ser 1595 | | Asn | Cys | Gly | His 1600 | | Glu | Asp | Ala | Gly 1605 | | Ile | Cys | |
| Ser | Ala 1610 | | Gln | Ser | Gln | Ser 1615 | | Pro | Arg | Pro | Asp 1620 | | Trp | Leu | |
| Thr | Thr 1625 | | Leu | Pro | Ala | Leu 1630 | | Val | Gly | Ser | Glu 1635 | | Ser | Leu | |
| Ala | Leu 1640 | Arg | Leu | Val | Asn | Gly 1645 | Gly | Asp | Arg | Суѕ | Arg 1650 | _ | Arg | Val | |
| Glu | Val 1655 | Leu | Tyr | Arg | Gly | Ser 1660 | Trp | Gly | Thr | Val | Cys 1665 | Asp | Asp | Ser | |
| Trp | Asp 1670 | Thr | Asn | Asp | Ala | Asn 1675 | Val | Val | Cys | Arg | Gln 1680 | Leu | Gly | Cys | |
| Gly | Trp 1685 | Ala | Met | Ser | Ala | Pro 1690 | Gly | Asn | Ala | Arg | Phe 1695 | Gly | Gln | Gly | |
| Ser | Gly 1700 | Pro | Ile | Val | Leu | Asp 1705 | Asp | Val | Arg | Cys | Ser 1710 | Gly | Asn | Glu | |
| Ser | Tyr 1715 | Leu | Trp | Ser | Cys | Pro 1720 | His | Lys | Gly | Trp | Leu 1725 | Thr | His | Asn | |
| Суѕ | Gly 1730 | His | His | Glu | Asp | Ala 1735 | Gly | Val | Ile | Cys | Ser 1740 | Ala | Thr | Gln | |
| Ile | Asn 1745 | Ser | Thr | Thr | Thr | Asp 1750 | Trp | Trp | His | Pro | Thr 1755 | Thr | Thr | Thr | |

| Thr | Ala 1760 | _ | Pro | Ser | Ser | Asn 1765 | _ | Gly | Gly | Phe | Leu 1770 | | Tyr | Ala |
|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|
| Ser | Gly 1775 | | Phe | Ser | Ser | Pro 1780 | | Tyr | Pro | Ala | Tyr 1785 | _ | Pro | Asn |
| Asn | Ala 1790 | _ | Cys | Val | Trp | Glu 1795 | | Glu | Val | Asn | Ser 1800 | _ | Tyr | Arg |
| | Asn 1805 | | Gly | Phe | Ser | Asn 1810 | | Lys | Leu | Glu | Ala 1815 | | His | Asn |
| Cys | Ser 1820 | Phe | Asp | Tyr | Val | Glu 1825 | | Phe | Asp | Gly | Ser 1830 | Leu | Asn | Ser |
| Ser | Leu 1835 | | Leu | Gly | Lys | Ile 1840 | • | Asn | Asp | Thr | Arg 1845 | | Ile | Phe |
| Thr | Ser 1850 | Ser | Tyr | Asn | Arg | Met 1855 | Thr | Ile | His | Phe | Arg 1860 | Ser | Asp | Ile |
| Ser | Phe 1865 | Gln | Asn | Thr | Gly | Phe 1870 | | Ala | Trp | Tyr | Asn 1875 | Ser | Phe | Pro |
| Ser | Asp 1880 | Ala | Thr | Leu | Arg | Leu 1885 | Val | Asn | Leu | Asn | Ser 1890 | Ser | Tyr | Gly |
| Leu | Cys 1895 | Ala | Gly | Arg | Val | Glu 1900 | | Tyr | His | | Gly 1905 | Thr | Trp | Gly |
| Thr | Val 1910 | Cys | Asp | Asp | Ser | Trp 1915 | Thr | Ile | Gln | Glu | Ala 1920 | Glu | Val | Val |
| Cys | Arg 1925 | Gln | Leu | Gly | Cys | Gly 1930 | Arg | Ala | Val | Ser | Ala 1935 | Leu | Gly | Asn |
| Ala | Tyr 1940 | Phe | Gly | Ser | Gly | Ser 1945 | Gly | Pro | Ile | Thr | Leu 1950 | Asp | Asp | Val |
| Glu | Cys 1955 | Ser | Gly | Thr | Glu | Ser 1960 | Thr | Leu | Trp | Gln | Cys 1965 | Arg | Asn | Arg |
| Gly | Trp | Phe | Ser | His | Asn | Cys | Asn | His | Arg | Glu | Asp | Ala | Gly | Val |

| 1970 | 1975 | 1980 |
|------|------|------|
| 19/0 | 17/3 | 1000 |

| Ile | Cys 1985 | | Gly | Asn | His | Leu 1990 | | Thr | Pro | Ala | Pro 1995 | | Leu | Asn |
|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|
| Ile | Thr 2000 | - | Pro | Asn | Thr | Asp 2005 | Tyr | Ser | Cys | Gly | Gly 2010 | | Leu | Ser |
| Gln | Pro 2015 | | Gly | Asp | Phe | Ser 2020 | | Pro | Phe | Tyr | Pro 2025 | | Asn | Tyr |
| Pro | Asn 2030 | | Ala | Lys | Cys | Val 2035 | | Asp | Ile | Glu | Val 2040 | Gln | Asn | Asn |
| Tyr | Arg 2045 | | Thr | Val | Ile | Phe 2050 | _ | Asp | Val | Gln | Leu 2055 | Glu | Gly | Gly |
| Cys | Asn 2060 | _ | Asp | Tyr | Ile | Glu 2065 | | Phe | Asp | Gly | Pro 2070 | Tyr | Arg | Ser |
| Ser | Pro 2075 | Leu | Ile | Ala | Arg | Val 2080 | _ | Asp | Gly | Ala | Arg 2085 | Gly | Ser | Phe |
| Thr | Ser 2090 | Ser | Ser | Asn | Phe | Met 2095 | | Ile | Arg | Phe | Ile 2100 | Ser | Asp | His |
| Ser | Ile 2105 | Thr | Arg | Arg | Gly | Phe 2110 | Arg | Ala | Glu | Tyr | Tyr 2115 | Ser | Ser | Pro |
| | Asn 2120 | | • | | | 2125 | | | | | 2130 | | | |
| | Ser 2135 | | | | | 2140 | | | | | 2145 | | | |
| | Asp 2150 | | | | | 2155 | | | | | 2160 | | | |
| | Gln 2165 | | | | | 2170 | | | | | 2175 | | | |
| Gly | Cys 2180 | Gly | Thr | Phe | Lys | Gln 2185 | Ala | Asp | Asn | Asp | Thr 2190 | Ile | Asp | Tyr |

| Ser | Asn 2195 | | Leu | Thr | Ala | Ala 2200 | | Ser | Gly | Gly | Ile 2205 | Ile | Lys | Arg |
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| Arg | Thr 2210 | _ | Leu | Arg | Ile | His 2215 | Val | Ser | Cys | Arg | Met 2220 | Leu | Gln | Asn |
| Thr | Trp 2225 | | Asp | Thr | Met | Tyr 2230 | | Ala | Asn | Asp | Thr 2235 | Ile | His | Val |
| Ala | Asn 2240 | | Thr | Ile | Gln | Val 2245 | | Glu | Val | Gln | Tyr 2250 | _ | Asn | Phe |
| Asp | Val 2255 | | Ile | Ser | Phe | Tyr 2260 | | Ser | Ser | Ser | Phe 2265 | Leu | Tyr | Pro |
| Val | Thr 2270 | | Arg | Pro | Tyr | Tyr 2275 | Val | Asp | Leu | Asn | Gln 2280 | Asp | Leu | Tyr |
| Val | Gln 2285 | Ala | Glu | Ile | Leu | His 2290 | Ser | Asp | Ala | Val | Leu 2295 | Thr | Leu | Phe |
| Val | Asp 2300 | | Cys | Val | Ala | Ser 2305 | Pro | Tyr | Ser | Asn | Asp 2310 | Phe | Thr | Ser |
| Leu | Thr 2315 | Tyr | Asp | Leu | Ile | Arg 2320 | Ser | Gly | Cys | Val | Arg 2325 | Asp | Asp | Thr |
| Tyr | Gly 2330 | Pro | Tyr | Ser | Ser | Pro 2335 | Ser | Leu | Arg | Ile | Ala 2340 | Arg | Phe | Arg |
| Phe | Arg 2345 | Ala | Phę | His | | Leu 2350 | | Arg | | | Ser 2355 | | Tyr | Leu |
| Arg | Cys 2360 | Lys | Met | Val | Val | Cys 2365 | Arg | Ala | Tyr | Asp | Pro 2370 | Ser | Ser | Arg |
| Cys | Tyr 2375 | Arg | Gly | Cys | Val | Leu 2380 | Arg | Ser | Lys | Arg | Asp 2385 | Val | Gly | Ser |
| Tyr | Gln 2390 | Glu | Lys | Val | Asp | Val 2395 | Val | Leu | Gly | Pro | Ile 2400 | Gln | Leu | Gln |
| Thr | Pro | Pro | Arg | Arg | Glu | Glu | Glu | Pro | Arg | | | | | |

2405 2410

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<212> PRT

<213> Homo sapiens

<400> 51

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Leu Ile Pro Ser Glu Val Pro Leu Asp Gln Thr Val Ala Glu Gly Ser 35 40 45

Pro Phe Pro Ser Glu Ser Thr Leu Glu Ser Thr Ala Ala Glu Gly Ser 50 55 60

Pro Ile Ser Leu Glu Ser Thr Leu Glu Ser Thr Val Ala Glu Gly Ser 65 70 75 80

Leu Ile Pro Ser Glu Ser Thr Leu Glu Ser Thr Val Ala Glu Gly Ser 85 90 95

Asp Ser Gly Leu Ala Leu Arg Leu Val Asn Gly Asp Gly Arg Cys Gln
100 105 110

Gly Arg Val Glu Ile Leu Tyr Arg Gly Ser Trp Gly Thr Val Cys Asp 115 120 125

Asp Ser Trp Asp Thr Asn Asp Ala Asn Val Val Cys Arg Gln Leu Gly
130 140

Cys Gly Trp Ala Met Ser Ala Pro Gly Asn Ala Trp Phe Gly Gln Gly 145 150 155 160

Ser Gly Pro Ile Ala Leu Asp Asp Val Arg Cys Ser Gly His Glu Ser 165 170 175

Tyr Leu Trp Ser Cys Pro His Asn Gly Trp Leu Ser His Asn Cys Gly
180 185 190

| His | Gly | Glu 195 | Asp | Ala | Gly | Val | Ile 200 | Cys | Ser | Ala | Ala | Gln 205 | | Gln | Ser |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Thr | Leu 210 | Arg | Pro | Glu | Ser | Trp 215 | Pro | Val | Arg | Ile | Ser 220 | | Pro | Val | Pro |
| Thr 225 | Glu | Gly | Ser | Glu | Ser 230 | Ser | Leu | Ala | Leu | Arg 235 | | Val | Asn | Gly | Gly 240 |
| Asp | Arg | Cys | Arg | Gly 245 | Arg | Val | Glu | Val | Leu 250 | Tyr | Arg | Gly | Ser | Trp 255 | Gly |
| Thr | Val | Cys | Asp 260 | Asp | Tyr | Trp | Asp | Thr 265 | Asn | Asp | Ala | Asn | Val 270 | Val | Cys |
| Arg | Gln | Leu 275 | Gly | Cys | Gly | Trp | Ala 280 | Met | Ser | Ala | Pro | Gly 285 | Asn | Ala | Gln |
| Phe | Gly 290 | Gln | Gly | Ser | Gly | Pro 295 | Ile | Val | Leu | Asp | Asp 300 | Val | Arg | Cys | Ser |
| Gly 305 | His | Glu | Ser | Tyr | Leu 310 | Trp | Ser | Cys | Pro | His 315 | Asn | Gly | Trp | Leu | Thr 320 |
| His | Asn | Cys | Gly | His 325 | Ser | Glu | Asp | Ala | Gly 330 | Val | Ile | Cys | Ser | Ala 335 | Pro |
| Gln | Ser | Arg | Pro 340 | Thr | Pro | Ser | Pro | Asp 345 | Thr | Trp | Pro | Thr | Ser 350 | His | Ala |
| Ser | Thr | Ala 355 | Gly | Pro | Glu | Ser | Ser 360 | Leu | Ala | Leu | Arg | Leu 365 | Val | Asn | Gly |
| Gly | Asp 370 | Arg | Cys | Gln | Gly | Arg 375 | Val | Glu | Val | Leu | Tyr 380 | Arg | Gly | Ser | Trp |
| Gly 385 | Thr | Val | Cys | Asp | Asp 390 | Ser | Trp | Asp | Thr | Ser 395 | Asp | Ala | Asn | Val | Val 400 |
| Cys | Arg | Gln | Leu | Gly 405 | Cys | Gly | Trp | Ala | Thr 410 | Ser | Ala | Pro | Gly | Asn 415 | Ala |
| Arg | Phe | Gly | Gln 420 | Gly | Ser | Gly | Pro | Ile 425 | Val | Leu | Asp | Asp | Val 430 | Arg | |

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| Ser | Gly | Tyr 435 | Glu | Ser | Tyr | Leu | Trp 440 | | Cys | Pro | His | Asn 445 | _ | Trp | Lei |
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| Ser | His 450 | Asn | Cys | Gln | His | Ser 455 | Glu | Asp | Ala | Gly | Val 460 | | Cys | Ser | Ala |
| Ala 465 | His | Ser | Trp | Ser | Thr 470 | Pro | Ser | Pro | Asp | Thr 475 | | Pro | Thr | Ile | Th: |
| Leu | Pro | Ala | Ser | Thr 485 | Val | Gly | Ser | Glu | Ser 490 | | Leu | Ala | Leu | Arg 495 | |
| Val | Asn | Gly | Gly 500 | Asp | Arg | Cys | Gln | Gly 505 | Arg | Val | Glu | Val | Leu 510 | Tyr | Glr |
| Gly | Ser | Trp 515 | Gly | Thr | Val | Cys | Asp 520 | Asp | Ser | Trp | Asp | Thr 525 | Asn | Asp | Ala |
| Asn | Val 530 | Val | Cys | Arg | Gln | Pro 535 | Gly | Cys | Gly | Trp | Ala 540 | Met | Ser | Ala | Pro |
| Gly 545 | Asn | Ala | Arg | Phe | Gly 550 | Gln | Gly | Ser | Gly | Pro 555 | Ile | Val | Leu | Asp | Asp 560 |
| Val | Arg | Cys | Ser | Gly 565 | His | Glu | Ser | Tyr | Pro 570 | Trp | Ser | Cys | Pro | His 575 | Asn |
| Gly | Trp | Leu | Ser 580 | His | Asn | Cys | Gly | His 585 | Ser | Glu | Asp | Ala | Gly 590 | Val | Ile |
| Cys | Ser | Ala 595 | Ser | Gln | Ser | Arg | Pro 600 | | Pro | Ser | Pro | Asp 605 | Thr | Trp | Pro |
| Thr | Ser 610 | His | Ala | Ser | Thr | Ala 615 | Gly | Ser | Glu | Ser | Ser 620 | Leu | Ala | Leu | Arg |
| Leu 625 | Val | Asn | Gly | Gly | Asp 630 | Arg | Cys | Gln | Gly | Arg 635 | Val | Glu | Val | Leu | Tyr 640 |
| Arg | Gly | Ser | Trp | Gly 645 | Thr | Val | Cys | Asp | Asp 650 | Tyr | Trp | Asp | Thr | Asn 655 | Asp |

| Ala | Asn | Val | Val 660 | | Arg | Gln | Leu | Gly 665 | | Gly | Trp | Ala | Met 670 | | Ala |
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| Pro | Gly | Asn 675 | Ala | Arg | Phe | Gly | Gln 680 | Gly | Ser | Gly | Pro | Ile 685 | Val | Leu | Asp |
| Asp | Val 690 | Arg | Cys | Ser | Gly | His 695 | Glu | Ser | Tyr | Leu | Trp 700 | Ser | Cys | Pro | His |
| Asn 705 | Gly | Trp | Leu | Ser | His 710 | Asn | Cys | Gly | His | His 715 | Glu | Asp | Ala | Gly | Val 720 |
| Ile | Cys | Ser | Ala | Ser 725 | Gln | Ser | Gln | Pro | Thr 730 | Pro | Ser | Pro | Asp | Thr 735 | Trp |
| Pro | Thr | Ser | His 740 | Ala | Ser | Thr | Ala | Gly 745 | Ser | Glu | Ser | Ser | Leu 750 | Ala | Leu |
| Arg | Leu | Val 755 | Asn | Gly | Gly | Asp | Arg 760 | Cys | Gln | Gly | Arg | Val 765 | Glu | Val | Leu |
| Туг | Arg 770 | Gly | Ser | Trp | Gly | Thr 775 | Val | Cys | Asp | Asp | Tyr 780 | Trp | Asp | Thr | Asn |
| Asp 785 | Ala | Asn | Val | Val | Cys 790 | Arg | Gln | Leu | Gly | Cys 795 | Gly | Trp | Ala | Thr | Ser 800 |
| Ala | Pro | Gly | Asn | Ala 805 | Arg | Phe | Gly | Gln | Gly 810 | Ser | Gly | Pro | Ile | Val 815 | Leu |
| Asp | Asp | Val | Arg 820 | Cys | Ser | Gly | His | Glu 825 | Ser | Tyr | Leu | Trp | Ser 830 | Cys | Pro |
| His | Asn | Gly 835 | Trp | Leu | Ser | His | Asn 840 | Cys | Gly | His | His | Glu 845 | Asp | Ala | Gly |
| Val | Ile 850 | Cys | Ser | Ala | Ser | Gln 855 | Ser | Gln | Pro | Thr | Pro 860 | Ser | Pro | Asp | Thr |
| Trp 865 | Pro | Thr | Ser | Arg | Ala 870 | Ser | Thr | Ala | Gly | Ser 875 | Glu | Ser | Thr | Leu | Ala 880 |
| Leu | Arg | Leu | Val | Asn 885 | Gly | Gly | Asp | Arg | Cys 890 | Arg | Gly | Arg | Val | Glu 895 | Val |

Leu Tyr Gln Gly Ser Trp Gly Thr Val Cys Asp Asp Tyr Trp Asp Thr Asn Asp Ala Asn Val Val Cys Arg Gln Leu Gly Cys Gly Trp Ala Met Ser Ala Pro Gly Asn Ala Gln Phe Gly Gln Gly Ser Gly Pro Ile Val Leu Asp Asp Val Arg Cys Ser Gly His Glu Ser Tyr Leu Trp Ser Cys Pro His Asn Gly Trp Leu Ser His Asn Cys Gly His His Glu Asp Ala Gly Val Ile Cys Ser Ala Ala Gln Ser Gln Ser Thr Pro Arg Pro Asp Thr Trp Leu Thr Thr Asn Leu Pro Ala Leu Thr Val Gly Ser Glu Ser Ser Leu Ala Leu Arg Leu Val Asn Gly Gly Asp Arg Cys Arg Gly Arg Val Glu Val Leu Tyr Arg Gly Ser Trp Gly Thr Val Cys Asp Asp Ser Trp Asp Thr Asn Asp Ala Asn Val Val Cys Arg Gln Leu Gly Cys Gly Trp Ala Met Ser Ala Pro Gly Asn Ala Arg Phe Gly Gln Gly Ser Gly Pro Ile Val Leu Asp Asp Val Arg Cys Ser Gly Asn Glu Ser Tyr Leu Trp Ser Cys Pro His Lys Gly Trp Leu Thr

His Asn Cys Gly His His Glu Asp Ala Gly Val Ile Cys Ser Ala

| Thr | Gln 1115 | | Asn | Ser | Thr | Thr 1120 | | Asp | Trp | Trp | His 1125 | | Thr | Thr |
|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-------------|-----|-------|-----|
| Thr | Thr 1130 | | Ala | Arg | Pro | Ser 1135 | | Asn | Cys | Gly | Gly 1140 | | Leu | Phe |
| Tyr | Ala 1145 | | Gly | Thr | Phe | Ser 1150 | | Pro | Ser | Tyr | Pro 1155 | | Tyr | Tyr |
| Pro | Asn 1160 | | Ala | Lys | Cys | Val 1165 | | Glu | Ile | Glu | Val 1170 | | Ser | Gly |
| Tyr | Arg 1175 | | Asn | Leu | Gly | Phe 1180 | | Asn | Leu | Lys | Leu 1185 | | Ala | His |
| His | Asn 1190 | | Ser | Phe | Asp | Tyr 1195 | | Glu | Ile | Phe | Asp 1200 | _ | Ser | Leu |
| Asn | Ser 1205 | | Leu | Leu | Leu | Gly 1210 | | Ile | Cys | Asn | Asp 1215 | | Arg | Gln |
| Ile | Phe 1220 | Thr | Ser | Ser | Tyr | Asn 1225 | Arg | Met | Thr | Ile | His 1230 | Phe | Arg | Ser |
| Asp | Ile 1235 | | Phe | Gln | Asn | Thr 1240 | Gly | Phe | Leu | Ala | Trp 1245 | Tyr | Asn | Ser |
| Phe | Pro 1250 | Ser | Asp | Ala | Thr | Leu 1255 | Arg | Leu | Val | Asn | Leu 1260 | Asn | Ser | Ser |
| Tyr | Gly 1265 | Leu | Cys | Ala | Gly | Arg 1270 | Val | Glu | Ile | Tyr | His 1275 | Gly | Gly | Thr |
| Trp | Gly 1280 | Thr | Val | Cys | Asp | Asp 1285 | Ser | Trp | Thr | Ile | Gln 1290 | Glu | Ala | Glu |
| Val | Val 1295 | Cys | Arg | Gln | Leu | Gly 1300 | Cys | Gly | Arg | Ala | Val 1305 | Ser | Ala | Leu |
| Gly | Asn 1310 | Ala | Tyr | Phe | Gly | Ser 1315 | Gly | Ser | Gly | Pro | Ile 1320 | Thr | Leu | Asp |
| Asp | Val 1325 | Glu | Cys | Ser | Gly | Thr 1330 | Glu | Ser | Thr | | Trp 1335 | Gln | Cys . | Arg |

| Asn | Arg 1340 | _ | Trp | Phe | Ser | His 1345 | | Cys | Asn | His | Arg 1350 | | Asp | Ala |
|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|-----|----------------------|-----|-----|-----|
| Gly | Val 1355 | Ile | Cys | Ser | Gly | Asn 1360 | | Leu | Ser | Thr | Pro 1365 | | Pro | Phe |
| Leu | Asn 1370 | | Thr | Arg | Pro | Asn 1375 | | Asp | Tyr | Ser | Cys 1380 | | Gly | Phe |
| Leu | Ser 1385 | | Pro | Ser | Gly | Asp 1390 | | Ser | Ser | Pro | Phe 1395 | | Pro | Gly |
| Asn | Tyr 1400 | | Asn | Asn | Ala | Lys 1405 | | Val | Trp | Asp | Ile 1410 | Glu | Val | Gln |
| Asn | Asn 1415 | _ | Arg | Val | Thr | Val 1420 | | Phe | Arg | Asp | Val 1425 | | Leu | Glu |
| Gly | Gly 1430 | Cys | Asn | Tyr | Asp | Tyr 1435 | | Glu | Val | Phe | Asp 1440 | Gly | Pro | Tyr |
| Arg | Ser 1445 | Ser | Pro | Leu | Ile | Ala 1450 | Arg | Val | Cys | Asp | Gly 1455 | Ala | Arg | Gly |
| Ser | Phe 1460 | Thr | Ser | Ser | Ser | Asn 1465 | Phe | Met | Ser | Ile | Arg 1470 | Phe | Ile | Ser |
| Asp | His 1475 | Ser | Ile | Thr | Arg | Arg 1480 | Gly | Phe | Arg | Ala | Glu 1485 | Tyr | Tyr | Ser |
| | Pro 1490 | | | _ | | | | | | | Leu 1500 | | Asn | His |
| Met | Gln 1505 | Ala | Ser | Val | Ser | Arg 1510 | Ser | Tyr | Leu | Gln | Ser 15Ì5 | Leu | Gly | Phe |
| Ser | Ala 1520 | Ser | Asp | Leu | Val | Ile 1525 | Ser | Thr | Trp | Asn | Gly 1 5 30 | Tyr | Tyr | Glu |
| Cys | Arg 1535 | Pro | Gln | Ile | | Pro 1540 | Asn | Leu | Val | Ile | Phe 1545 | Thr | Ile | Pro |

| Tyr | Ser 1550 | Gly | Cys | Gly | Thr | Phe 1555 | | Gln | Ala | Asp | Asn 1560 | | Thr | Ile |
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| Lys | Arg 1580 | Arg | Thr | Asp | Leu | Arg 1585 | Ile | His | Val | Ser | Cys 1590 | Arg | Met | Leu |
| Gln | Asn 1595 | | Trp | Val | Asp | Thr 1600 | | Tyr | Ile | Ala | Asn 1605 | | Thr | Ile |
| His | Val 1610 | | Asn | Asn | Thr | Ile 1615 | | Val | Glu | Glu | Val 1620 | Gln | Tyr | Gly |
| Asn | Phe 1625 | _ | Val | Asn | Ile | Ser 1630 | | Tyr | Thr | Ser | Ser 1635 | Ser | Phe | Leu |
| Tyr | Pro 1640 | | Thr | Ser | | Pro 1645 | | Tyr | Val | Asp | Leu 1650 | | Gl'n | Asp |
| Leu | Tyr 1655 | Val | Gln | Ala | Glu | Ile 1660 | Leu | His | Ser | Asp | Ala 1665 | Val | Leu | Thr |
| Leu | Phe 1670 | Val | Asp | Thr | _ | Val 1675 | | Ser | Pro | | Ser 1680 | Asn | Asp | Phe |
| Thr | Ser 1685 | Leu | Thr | Tyr | Asp | Leu 1690 | Ile | Arg | Ser | Gly | Cys 1695 | Val | Arg | Asp |
| Asp | Thr 1700 | Tyr | Gly | Pro | Tyr | Ser 1705 | Ser | Pro | Ser | Leu | Arg 1710 | Ile | Ala | Arg |
| Phe | Arg 1715 | Phe | Arg | Ala | Phe | His 1720 | Phe | Leu | Asn | Arg | Phe 1725 | Pro | Ser | Val |
| Tyr | Leu 1730 | Arg | Cys | Lys | Met | Val 1735 | Val | Cys | Arg | Ala | Tyr 1740 | Asp | Pro | Ser |
| Ser | Arg 1745 | Cys | Tyr | Arg | Gly | Cys 1750 | Val | Leu | Arg | Ser | Lys 1755 | Arg | Asp | Val |
| Gly | Ser 1760 | Tyr | Gln | Glu | Lys | Val 1765 | Asp | Val | Val | Leu | Gly 1770 | Pro | Ile | Gln |

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| Asn | Ala | Cys 35 | Thr | Leu | Val | Met | Cys 40 | Ser | Pro | Leu | Glu | Ser 45 | Gly | Leu | . Pro |
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| Asp 65 | Pro | Gly | Ser | Pro | Gly 70 | Pro | Ala | Gly | Arg | Ala 75 | Gly | Arg | Pro | Gly | Trp 80 |
| Val | Gly | Pro | Ile | Gly 85 | Pro | Lys | Gly | Asp | Asn 90 | Gly | Phe | Val | Gly | Glu 95 | Pro |
| Gly | Pro | Lys | Gly 100 | Asp | Thr | Gly | Pro | Arg 105 | Gly | Pro | Pro | Gly | Met 110 | Pro | Gly |
| Pro | Ala | Gly 115 | Arg | Glu | Gly | Pro | Ser 120 | Gly | Lys | Gln | Gly | Ser 125 | Met | Gly | Pro |
| Pro | Gly 130 | Thr | Pro | Gly | Pro | Lys 135 | Gly | Glu | Thr | Gly | Pro 140 | Lys | Gly | Gly | Val |
| Gly 145 | Ala | Pro | Gly | Ile | Gln 150 | Gly | Phe | Pro | Gly | Pro 155 | Ser | Gly | Leu | Lys | Gly 160 |
| Glu | Lys | Gly | Ala | Pro 165 | Gly | Glu | Thr | Gly | Ala 170 | Pro | Gly | Arg | Ala | Gly 175 | Val |
| Thr | Gly | Pro | Ser 180 | Gly | Ala | Ile | Gly | Pro 185 | Gln | Gly | Pro | Ser | Gly 190 | Ala | Arg |
| Gly | Pro | Pro 195 | Gly | Leu | Lys | Gly | Asp 200 | Arg | Gly | Asp | Pro | Gly 205 | Glu | Thr | Gly |
| Ala | Lys 210 | Gly | Glu | Ser | Gly | Leu 215 | Ala | Glu | Val | Asn | Ala 220 | Leu | Lys | Gln | Arg |
| Val 225 | Thr | Ile | Leu | Asp | Gly 230 | His | Leu | Arg | Arg | Phe 235 | Gln | Asn | Ala | Phe | Ser 240 |
| Gln | Tyr | Lys | Lys | Ala 245 | Val | Leu | Phe | Pro | Asp 250 | Gly | Gln | Ala | Val | Gly 255 | Glu |
| Lys | Ile | Phe | Lys | Thr | Ala | Gly | Ala | Val | Lys | Ser | Tyr | Ser | Asp | Ala | Glu |

260 265 270

Gln Leu Cys Arg Glu Ala Lys Gly Gln Leu Ala Ser Pro Arg Ser Ser 275 280 285

Ala Glu Asn Glu Ala Val Thr Gln Met Val Arg Ala Gln Glu Lys Asn 290 295 300

Ala Tyr Leu Ser Met Asn Asp Ile Ser Thr Glu Gly Arg Phe Thr Tyr 305 310 315 320

Pro Thr Gly Glu Ile Leu Val Tyr Ser Asn Trp Ala Asp Gly Glu Pro 325 330 335

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Cys Glu Phe 370

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Ser Ala Cys Thr Leu Val Met Cys Ser Ser Val Glu Ser Gly Leu Pro 35 40 45

Gly Arg Asp Gly Arg Gly Arg Glu Gly Pro Arg Gly Glu Lys Gly
50 55 60

Asp Pro Gly Leu Pro Gly Ala Ala Gly Gln Ala Gly Met Pro Gly Gln 65 70 75 80

| Ala | Gly | Pro | Val | Gly 85 | Pro | Lys | Gly | Asp | Asn 90 | Gly | Ser | Val | Gly | Glu 95 | Pro | |
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| Gly | Pro | Lys | Gly 100 | Asp | Thr | Gly | Pro | Ser 105 | Gly | Pro | Pro | Gly | Pro 110 | | Gly | |
| Val | Pro | Gly 115 | Pro | Ala | Gly | Arg | Glu 120 | Gly | Ala | Leu | Gly | Lys 125 | Gln | Gly | Asn | |
| Ile | Gly 130 | Pro | Gln | Gly | Lys | Pro 135 | Gly | Pro | Lys | Gly | Glu 140 | Ala | Gly | Pro | Lys | |
| Gly 145 | Glu | Val | Gly | Ala | Pro 150 | Gly | Met | Gln | Gly | Ser 155 | Ala | Gly | Ala | Arg | Gly 160 | |
| Leu | Ala | Gly | Pro | Lys 165 | Gly | Glu | Arg | Gly | Val 170 | Pro | Gly | Glu | Arg | Gly 175 | Val | |
| Pro | Gly | Asn | Thr 180 | Gly | Ala | Ala | Gly | Ser 185 | Ala | Gly | Ala | Met | Gly 190 | Pro | Gln | |
| Gly | Ser | Pro 195 | Gly | Ala | Arg | Gly | Pro 200 | Pro | Gly | Leu | Lys | Gly 205 | Asp | Lys | Gly | |
| Ile | Pro 210 | Gly | Asp | Lys | Gly | Ala 215 | Lys | Gly | Glu | Ser | Gly 220 | Leu | Pro | Asp | Val | |
| Ala 225 | Ser | Leu | Arg | Gln | Gln 230 | Val | Glu | Ala | Leu | Gln 235 | Gly | Gln | Val | Gln | His 240 | |
| Leu | Gln | Ala | Ala | Phe 245 | Ser | Gln | Tyr | Lys | Lys 250 | Val | Glu | Leu | Phe | Pro 255 | Asn | |
| Gly | Gln | Ser | Val 260 | Gly | Glu | Lys | Ile | Phe 265 | Lys | Thr | Ala | Gly | Phe 270 | Val | Lys | |
| Pro | Phe | Thr 275 | Glu | Ala | Gln | Leu | Leu 280 | Cys | Thr | Gln | Ala | Gly 285 | Gly | Gln | Leu | |
| Ala | Ser 290 | Pro | Arg | Ser | Ala | Ala 295 | Glu | Asn | Ala | Ala | Leu 300 | Gln | Gln | Leu | Val | |
| Val 305 | Ala | Lys | Asn | Glu | Ala 310 | Ala | Phe | Leu | Ser | Met 315 | Thr | Asp | Ser | Lys | Thr 320 | |

Glu Gly Lys Phe Thr Tyr Pro Thr Gly Glu Ser Leu Val Tyr Ser Asn 325 330 Trp Ala Pro Gly Glu Pro Asn Asp Gly Gly Ser Glu Asp Cys Val 340 345 Glu Ile Phe Thr Asn Gly Lys Trp Asn Asp Arg Ala Cys Gly Glu Lys 360 Arg Leu Val Val Cys Glu Phe <210> 56 <211> 197 <212> PRT <213> Homo sapiens <400> 56 Met Asp Val Gly Ser Lys Glu Val Leu Met Glu Ser Pro Pro Asp Tyr Ser Ala Ala Pro Arg Gly Arg Phe Gly Ile Pro Cys Cys Pro Val His Leu Lys Arg Leu Leu Ile Val Val Val Val Val Leu Ile Val Val Val Ile Val Gly Ala Leu Leu Met Gly Leu His Met Ser Gln Lys His Thr Glu Met Val Leu Glu Met Ser Ile Gly Ala Pro Glu Ala Gln Gln Arg Leu Ala Leu Ser Glu His Leu Val Thr Thr Ala Thr Phe Ser Ile 90 Gly Ser Thr Gly Leu Val Val Tyr Asp Tyr Gln Gln Leu Leu Ile Ala 100 Tyr Lys Pro Ala Pro Gly Thr Cys Cys Tyr Ile Met Lys Ile Ala Pro

. 120

Glu Ser Ile Pro Ser Leu Glu Ala Leu Asn Arg Lys Val His Asn Phe

130 135 140

Gln Met Glu Cys Ser Leu Gln Ala Lys Pro Ala Val Pro Thr Ser Lys 145 150 155 160

Leu Gly Gln Ala Glu Gly Arg Asp Ala Gly Ser Ala Pro Ser Gly Gly 165 170 175

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Pro Gly Thr Pro Gly Ser His Gly Leu Pro Gly Arg Asp Gly Arg Asp 35 40 45

Gly Val Lys Gly Asp Pro Gly Pro Pro Gly Pro Leu Gly Pro Pro Gly 50 55 60

Gly Met Pro Gly His Pro Gly Pro Asn Gly Met Thr Gly Ala Pro Gly 65 70 75 80

Val Ala Gly Glu Arg Gly Glu Lys Gly Glu Pro Gly Glu Arg Gly Pro 85 90 95

Pro Gly Leu Pro Ala Ser Leu Asp Glu Glu Leu Gln Thr Thr Leu His
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Asp Leu Arg His Gln Ile Leu Gln Thr Met Gly Val Leu Ser Leu His 115 120 125

| Glu | Ser 130 | | Leu | Val | Val | Gly 135 | Arg | Lys | Val | Phe | Ser 140 | | Gly | Ala | Gln |
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| Ser 145 | | Asn | Phe | Asn | Asp 150 | Ile | Gln | Glu | Leu | Cys 155 | | Gly | Ala | Gly | Gly 160 |
| Gln | Ile | Ala | Ala | Pro 165 | Met | Ser | Pro | Glu | Glu 170 | | Glu | Ala | Val | Ala 175 | Ser |
| Ile | Val | Lys | Lys 180 | Tyr | Asn | Thr | Tyr | Ala 185 | Tyr | Leu | Gly | Leu | Val 190 | Glu | Ser |
| Pro | Asp | Ser 195 | Gly | Asp | Phe | Gln | Tyr 200 | Met | Asp | Gly | Ala | Pro 205 | Val | Asn | Tyr |
| Thr | Asn 210 | Trp | Tyr | Pro | Gly | Glu 215 | Pro | Arg | Gly | Arg | Gly 220 | Lys | Glu | Gln | Cys |
| Val 225 | Glu | Met | Tyr | Thr | Asp 230 | Gly | Gln | Trp | Asn | Asn 235 | Lys | Asn | Cys | Leu | Gln 240 |
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| Gly | Ala | Val | Cys 20 | Glu | Val | Lys | Asp | Val 25 | Cys | Val | Gly | Ser | Pro 30 | Gly | Ile |
| Pro | Gly | Thr 35 | Pro | Gly | Ser | His | Gly 40 | Leu | Pro | Gly | Arg | His 45 | Gly | Arg | Asp |
| ~1 | | | | | | | | | _ | | | | _ | | |
| σтλ | Leu 50 | Lys | Gly | Asp | Leu | Gly 55 | Pro | Pro | Gly | Pro | Met 60 | GIY | Pro | Pro | GIA |

| Ile | Pro | Gly | Glu | Cys 85 | Gly | Glu | . Lys | Gly | Glu 90 | Pro | Gly | Glu | Arg | Gly 95 | Pro |
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| Pro | Gly | Leu | Pro 100 | Ala | His | Leu | Asp | Glu 105 | | Leu | Gln | Ala | Thr 110 | Leu | His |
| Asp | Phe | Arg 115 | His | Gln | Ile | Leu | Gln 120 | | Arg | Gly | Ala | Leu 125 | | Leu | Gl'n |
| Gly | Ser 130 | Ile | Met | Thr | Val | Gly 135 | | Lys | Val | Phe | Ser 140 | Ser | Asn | Gly | Gln |
| Ser 145 | Ile | Thr | Phe | Asp | Ala 150 | Ile | Gln | Glu | Ala | Cys 155 | Ala | Arg | Ala | Gly | Gly 160 |
| Arg | Ile | Ala | Val | Pro 165 | Arg | Asn | Pro | Glu | Glu 170 | Asn | Glu | Ala | Ile | Ala 175 | Ser |
| Phe | Val | Lys | Lys 180 | Tyr | Asn | Thr | Tyr | Ala 185 | Tyr | Val | Gly | Leu | Thr 190 | Glu | Gly |
| Pro | Ser | Pro 195 | Gly | Asp | Phe | Arg | Tyr 200 | Ser | Asp | Gly | Thr | Pro 205 | Val | Asn | Tyr |
| Thr | Asn 210 | Trp | Tyr | Arg | Gly | Glu 215 | Pro | Ala | Gly | Arg | Gly 220 | Lys | Glu | Gln | Cys |
| Val 225 | Glu | Met | Tyr | Thr | Asp 230 | Gly | Gln | Trp | Asn | Asp 235 | Arg | Asn | Cys | Leu | Tyr 240 |
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| Arg | Asp | Gly | Lys | Glu | Gly | Pro | Gln | Gly | Glu | Lys | Gly | Asp | Pro | Gly | Pro |
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| | | 35 | | | | | 40 | | | | | 45 | | | |
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| Gly | Pro | Gln 115 | Gly | Pro | Ser | Gly | Ala 120 | Met | Gly | Pro | Pro | Gly 125 | Leu | Lys | Gly |
| Asp | Arg 130 | Gly | Asp | Pro | Gly | Glu 135 | Lys | Gly | Ala | Arg | Gly 140 | Glu | Thr | Ser | Val |
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| Val | Gln | Arg | Leu | Gln 165 | Asn | Ile | Val | Thr | Gln 170 | Tyr | Arg | Lys | Ala | Val 175 | `Leu |
| Phe | Pro | Asp | Gly 180 | Gln | Ala | Val | Gly | Glu 185 | Lys | Ile | Phe | Lys | Thr 190 | Ala | Gly |
| Ala | Val | Lys 195 | Ser | Tyr | Ser | _ | Ala 200 | Glu | Gln | Leu | Cys | Arg 205 | Glu | Ala | Lys |
| 3ly | Gln 210 | Leu | Ala | Ser | Pro | Arg 215 | Ser | Ser | Ala | Glu | Asn 220 | Glu | Ala | Val | Thr |
| 31n 225 | Leu | Val | Arg | Ala | Lys 230 | Asn | Lys | His | Ala | Tyr 235 | Leu | Ser | Met | Asn | Asp 240 |
| lle | Ser | Lys | | Gly 245 | Lys | Phe | Thr | | Pro 250 | Thr | Gly | Gly | Ser | Leu 255 | Asp |

| Gly | Pro | Glu 275 | | Cys | Leu | Glu | Ile 280 | | Ser | Asp | Gly | Asn 285 | Trp | Asn | Asp |
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| Arg | Ser | Leu | Gly 20 | Ala | Glu | Met | Lys | Ile 25 | Tyr | Ser | Gln | Lys | Thr 30 | Met | Ala |
| Asn | Ala | Cys 35 | Thr | Leu | Val | Met | Cys 40 | Ser | Pro | Pro | Glu | Asp 45 | Gly | Leu | Pro |
| Gly | Arg 50 | Asp | Gly | Arg | Asp | Gly 55 | Arg | Glu | Gly | Pro | Arg 60 | Gly | Glu | Lys | Gly |
| Asp 65 | Pro | Gly | Ser | Pro | Gly 70 | Pro | Ala | Gly | Arg | Ala 75 | Gly | Met | Pro | Gly | Pro 80 |
| Ala | Gly | Pro | Ile | Gly 85 | Leu | Lys | Gly | Asp | Asn 90 | Gly | Ser | Ala | Gly | Glu 95 | Pro |
| Gly | Pro | Lys | Gly 100 | Asp | Thr | Gly | Pro | Pro 105 | Gly | Pro | Pro | Gly | Met 110 | Pro | Gly |
| Pro | Ala | Gly 115 | Arg | Glu | Gly | Pro | Ser 120 | Gly | Lys | Gln | Gly | Ser 125 | Met | Gly | Pro |
| Pro | Gly 130 | Thr | Pro | Gly | Pro | Lys 135 | Gly | Asp | Thr | Gly | Pro 140 | Lys | Gly | Gly | Val |
| Gly 145 | Ala | Pro | Gly | Ile | Gln 150 | Gly | Ser | Pro | Gly | Pro 155 | Ala | Gly | Leu | Lys | Gly 160 |

Tyr Ser Asn Trp Ala Pro Gly Glu Pro Asn Asn Arg Ala Lys Asp Glu 260 265 270

| Glu | Arg | Gly | Ala | Pro 165 | Gly | Asp | Pro | Gly | Ala 170 | Pro | Gly | Arg | Ala | Gly 175 | Ala |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Pro | Gly | Pro | Arg 180 | Gly | Ala | Ile | Gly | Pro 185 | Gln | Gly | Pro | Ser | Gly 190 | Ala | Arg |
| Gly | Pro | Pro 195 | Gly | Leu | Lys | Gly | Asp 200 | Arg | Gly | Thr | Pro | Gly 205 | Glu | Arg | Gly |
| Ala | Lys 210 | Gly | Glu | Ser | Gly | Leu 215 | Ala | Glu | Val | Asn | Ala 220 | Leu | Arg | Gln | Arg |
| Val 225 | Gly | Ile | Leu | Glu | Gly 230 | Gln | Leu | Gln | Arg | Leu 235 | Gln | Asn | Ala | Phe | Ser 240 |
| Gln | Tyr | Lys | Lys | Ala 245 | Met | Leu | Phe | Pro | Asn 250 | Gly | Arg | Ser | Val | Gly 255 | Glu |
| Lys | Ile | Phe | Lys 260 | Thr | Val | Gly | Ser | Glu 265 | Lys | Thr | Phe | Gln | Asp 270 | Ala | Gln |
| Gln | Ile | Cys 275 | Thr | Gln | Ala | Gly | Gly 280 | Gln | Leu | Pro | Ser | Pro 285 | Arg | Ser | Gly |
| Ala | Glu 290 | Asn | Glu | Ala | Leu | Thr 295 | Gln | Leu | Ala | Thr | Ala 300 | Gln | Asn | Lys | Ala |
| Ala 305 | Phe | Leu | Ser | Met | Ser 310 | Asp | Thr | Arg | Lys | Glu 315 | Gly | Thr | Phe | Ile | Tyr 320 |
| Pro | Thr | Gly | Glu | Pro 325 | Leu | Val | Tyr | Ser | Asn 330 | Trp | Ala | Pro | Gln | Glu 335 | Pro |
| Asn | Asn | Asp | Gly 340 | Gly | Ser | Glu | Asn | Cys 345 | Val | Glu | Ile | Phe | Pro 350 | Asn | Gly |
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| Asp | Pro | Gly | Leu | Pro | Gly | Ala | Val | Gly | Arg | Ala | Gly | Met | Pro | Gly | Leu |
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Ala Gly Pro Val Gly Pro Lys Gly Asp Asn Gly Ser Thr Gly Glu Pro 85 90 95

Gly Ala Lys Gly Asp Ile Gly Pro Cys Gly Pro Pro Gly Pro Pro Gly 100 105 110

Ile Pro Gly Pro Ala Gly Lys Glu Gly Pro Ser Gly Gln Gln Gly Asn 115 120 125

Ile Gly Pro Pro Gly Thr Pro Gly Pro Lys Gly Glu Thr Gly Pro Lys
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Gly Glu Val Gly Ala Leu Gly Met Gln Gly Ser Thr Gly Ala Arg Gly 145 150 155 160

Pro Ala Gly Leu Lys Gly Glu Arg Gly Ala Pro Gly Glu Arg Gly Ala
165 170 175

Pro Gly Ser Ala Gly Ala Ala Gly Pro Ala Gly Ala Thr Gly Pro Gln
180 185 190

Gly Pro Ser Gly Ala Arg Gly Pro Pro Gly Leu Lys Gly Asp Arg Gly 195 200 205

Pro Pro Gly Glu Arg Gly Ala Lys Gly Glu Ser Gly Leu Pro Gly Ile 210 215 220

Thr Ala Leu Arg Gln Gln Val Glu Thr Leu Gln Gly Gln Val Gln Arg 225 230 235 240

Leu Gln Lys Ala Phe Ser Gln Tyr Lys Lys Val Glu Leu Phe Pro Asn 245 250 255

Gly Arg Gly Val Gly Glu Lys Ile Phe Lys Thr Gly Gly Phe Glu Lys 260 265 270

Thr Phe Gln Asp Ala Gln Gln Val Cys Thr Gln Ala Gly Gln Met 275 280 285

Ala Ser Pro Arg Ser Glu Thr Glu Asn Glu Ala Leu Ser Gln Leu Val 295 300 290 Thr Ala Gln Asn Lys Ala Ala Phe Leu Ser Met Thr Asp Ile Lys Thr Glu Gly Asn Phe Thr Tyr Pro Thr Gly Glu Pro Leu Val Tyr Ala Asn Trp Ala Pro Gly Glu Pro Asn Asn Gly Gly Ser Ser Gly Ala Glu 340 Asn Cys Val Glu Ile Phe Pro Asn Gly Lys Trp Asn Asp Lys Ala Cys Gly Glu Leu Arg Leu Val Ile Cys Glu Phe <210> 63 <211> 34 <212> PRT <213> Bos taurus <400> 63 Leu Ile Pro Cys Cys Pro Val Asn Ile Lys Arg Leu Leu Ile Val Val 10 Val Val Val Leu Leu Val Val Ile Val Gly Ala Leu Leu Met 20 25 Gly Leu <210> 64 <211> 369 <212> PRT <213> Bos taurus <400> 64 Met Leu Leu Pro Leu Ser Val Leu Leu Leu Thr Gln Pro Trp

Arg Ser Leu Gly Ala Glu Met Lys Ile Tyr Ser Gln Lys Thr Met Ala

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| | Gly | Arg 50 | Asp | Gly | Arg | Asp | Gly 55 | Arg | Glu | Gly | Pro | Arg 60 | Gly | Glu | Lys | Gly |
| | Asp 65 | Pro | Gly | Ser | Pro | Gly 70 | Pro | Ala | Gly | Arg | Ala 75 | Gly | Met | Pro | Gly | Pro 80 |
| | Ala | Gly | Pro | Ile | Gly 85 | Leu | Lys | Gly | Asp | Asn 90 | Gly | Ser | Ala | Gly | Glu 95 | Pro |
| | Gly | Pro | Lys | Gly 100 | Asp | Thr | Gly | Pro | Pro 105 | Gly | Pro | Pro | Gly | Met 110 | Pro | Gly |
| | Pro | Ala | Gly 115 | Arg | Glu | Gly | Pro | Ser 120 | Gly | Lys | Gln | Gly | Ser 125 | Met | Gly | Pro |
| | Pro | Gly 130 | Thr | Pro | Gly | Pro | Lys 135 | Gly | Asp | Thr | Gly | Pro 140 | Lys | Gly | Gly | Val |
| | Gly 145 | Ala | Pro | Gly | Ile | Gln 150 | Gly | Ser | Pro | Gly | Pro 155 | Ala | Gly | Leu | Lys | Gly 160 |
| • | Glu | Arg | Gly | Ala | Pro 165 | _ | Glu | Pro | Gly | Ala 170 | Pro | Gly | Arg | Ala | Gly 175 | Ala |
| • | Pro | Gly | Pro | Ala 180 | Gly | Ala | Ile | Gly | Pro 185 | Gln | Gly | Pro | Ser | Gly 190 | Ala | Arg |
| • | Gly | Pro | Pro 195 | Gly | Leu | Lys | Gly | Asp 200 | Arg | Gly | Thr | Pro | Gly 205 | Glu | Arg | Gly |
| 1 | Ala | Lys 210 | Gly | Glu | Ser | Gly | Leu 215 | Ala | Glu | Val | Asn | Ala 220 | Leu | Arg | Gln | Arg |
| | Val 225 | Gly | Ile | Leu | Glu | Gly 230 | Gln | Leu | Gln | Arg | Leu 235 | Gln | Asn | Ala | Phe | Ser 240 |
| (| Gln | Tyr | Lys | Lys | Ala 245 | Met | Leu | Phe | Pro | Asn 250 | Gly | Arg | Ser | Val | Gly 255 | Glu |
|] | Ĺуs | Ile | Phe | Lys | Thr | Val | Gly | Ser | Glu | Lys | Thr | Phe | Gln | Asp | Ala | Gln |

| 260 | 265 | 270 |
|-------|-----|-----|
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Gln Ile Cys Thr Gln Ala Gly Gly Gln Leu Pro Ser Pro Arg Ser Gly 275 280 285

Ala Glu Asn Glu Ala Leu Thr Gln Leu Ala Thr Ala Gln Asn Lys Ala 290 295 300

Ala Phe Leu Ser Met Ser Asp Thr Arg Lys Glu Gly Thr Phe Ile Tyr 305 310 315 320

Pro Thr Gly Glu Pro Leu Val Tyr Ser Asn Trp Ala Pro Gln Glu Pro 325 330 335

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Leu Val Val Cys Ala Pro Pro Ala Asp Ser Leu Arg Gly His Asp Gly 20 25 30

Arg Asp Gly Lys Glu Gly Pro Gln Gly Glu Lys Gly Asp Pro Gly Pro 35 40 45

Pro Gly Met Pro Gly Pro Ala Gly Arg Glu Gly Pro Ser Gly Arg Gln 50 55 60

Gly Ser Met Gly Pro Pro Gly Thr Pro Gly Pro Lys Gly Glu Pro Gly 65 70 75 80

Pro Glu Gly Gly Val Gly Ala Pro Gly Met Pro Gly Ser Pro Gly Pro 90 Ala Gly Leu Lys Gly Glu Arg Gly Ala Pro Gly Pro Gly Gly Ala Ile Gly Pro Gln Gly Pro Ser Gly Ala Met Gly Pro Pro Gly Leu Lys Gly 120 Asp Arg Gly Asp Pro Gly Glu Lys Gly Ala Arg Gly Glu Thr Ser Val 135 Leu Glu Val Asp Thr Leu Arg Gln Arg Met Arg Asn Leu Glu Gly Glu 150 Val Gln Arg Leu Gln Asn Ile Val Thr Gln Tyr Arg Lys Ala Val Leu 170 Phe Pro Asp Gly Gln Ala Val Gly Glu Lys Ile Phe Lys Thr Ala Gly 180 185 Ala Val Lys Ser Tyr Ser Asp Ala Glu Gln Leu Cys Arg Glu Ala Lys 200 195 Gly Gln Leu Ala Ser Pro Arg Ser Ser Ala Glu Asn Glu Ala Val Thr 215 220 210 Gln Leu Val Arg Ala Lys Asn Lys His Ala Tyr Leu Ser Met Asn Asp 225 230 240 235 Ile Ser Lys Glu Gly Lys Phe Thr Tyr Pro Thr Gly Gly Ser Leu Asp 245 250 Tyr Ser Asn Trp Ala Pro Gly Glu Pro Gly Asn Arg Ala Lys Asp Glu 260 Gly Pro Glu Asn Cys Leu Glu Ile Tyr Ser Asp Gly Asn Trp Asn Asp 280 285 275 Ile Glu Cys Arg Glu Glu Arg Leu Val Ile Cys Glu Phe 290 295 300 <210> 66

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<213> Homo sapiens

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Val Leu Ser Thr Gly Gly Trp Ile Pro Arg Thr Thr Asp Tyr Ala Ser 20 25 30

Leu Ile Pro Ser Glu Val Pro Leu Asp Thr Thr Val Ala Glu Gly Ser 35 40 45

Pro Phe Pro Ser Glu Leu Thr Leu Glu Ser Thr Val Ala Glu Gly Ser 50 55 60

Pro Ile Ser Leu Glu Ser Thr Leu Glu Thr Thr Val Ala Glu Gly Ser 65 70 75 80

Leu Ile Pro Ser Glu Ser Thr Leu Glu Ser Thr Val Ala Glu Gly Ser 85 90 95

Asp Ser Gly Leu Ala Leu Arg Leu Val Asn Gly Asp Gly Arg Cys Gln
100 105 110

Gly Arg Val Glu Ile Leu Tyr Arg Gly Ser Trp Gly Ala Val Cys Asp 115 120 125

Asp Ser Trp Asp Thr Asn Asp Ala Asn Val Val Cys Arg Gln Leu Gly
130 135 140

Cys Gly Trp Ala Met Ser Ala Pro Gly Asn Ala Trp Phe Gly Gln Gly 145 150 155 160

Ser Gly Pro Ile Ala Leu Asp Asp Val Arg Cys Ser Gly His Glu Ser 165 170 175

Tyr Leu Trp Ser Cys Pro His Asn Gly Trp Leu Ser His Asn Cys Gly
180 185 190

His Gly Glu Asp Ala Gly Val Ile Cys Ser Ala Ala Gln Pro Gln Ser 195 200 205

Thr Leu Arg Pro Glu Ser Trp Pro Val Arg Ile Ser Pro Pro Val Pro

210 215 220

| Thr 225 | Glu | Gly | Ser | Glu | Ser 230 | Ser | Leu | Ala | Leu | Arg 235 | Leu | Val | Asn | Gly | Gly 240 |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Asp | Arg | Cys | Arg | Gly 245 | Arg | Val | Glu | Val | Leu 250 | Tyr | Arg | Gly | Ser | Trp 255 | Gly |
| Thr | Val | Cys | Asp 260 | Asp | Tyr | Trp | Asp | Thr 265 | Asn | Asp | Ala | Asn | Val 270 | Val | Сув |
| Arg | Gln | Leu 275 | Gly | Cys | Gly | Trp | Ala 280 | Met | Ser | Ala | Pro | Gly 285 | Asn | Ala | Gln |
| Phe | Gly 290 | Gln | Gly | Ser | Gly | Pro 295 | Ile | Val | Leu | Asp | Asp 300 | Val | Arg | Cys | Ser |
| Gly 305 | His | Glu | Ser | Tyr | Leu 310 | Trp | Ser | Cys | Pro | His 315 | Asn | Gly | Trp | Leu | Thr 320 |
| His | Asn | Cys | Gly | His 325 | Ser | Glu | Asp | Ala | Gly 330 | Val | Ile | Cys | Ser | Ala 335 | Pro |
| Gln | Ser | Arg | Pro 340 | Thr | Pro | Ser | Pro | Asp 345 | Thr | Trp | Pro | Thr | Ser 350 | His | Ala |
| Ser | Thr | Ala 355 | Gly | Pro | Glu | Ser | Ser 360 | Leu | Ala | Leu | Arg | Leu 365 | Val | Asn | Gly |
| Gly | Asp 370 | Arg | Cys | Gln | Gly | Arg 375 | Val | Glu | Val | Leu | Tyr 380 | Arg | Gly | Ser | Trp |
| Gly 385 | Thr | Val | Cys | Asp | Asp 390 | Ser | Trp | Asp | Thr | Ser 395 | Asp | Ala | Asn | Val | Val 400 |
| Cys | Arg | Gln | Leu | Gly 405 | Cys | Gly | Trp | Ala | Thr 410 | Ser | Ala | Pro | Gly | Asn 415 | Ala |
| Arg | Phe | Gly | 420 | Gly | Ser | Gly | Pro | Ile 425 | Val | Leu | Asp | Asp | Val 430 | Arg | Cys |
| Ser | Gly | Tyr 435 | Glu | Ser | Tyr | Leu | Trp 440 | Ser | Cys | Pro | His | Asn 445 | Gly | Trp | Leu |

| Ser | His 450 | Asn | Cys | Gln | His | Ser 455 | Glu | Asp | Ala | Gly | Val 460 | Ile | Cys | Ser | Ala |
|------------|------------|--------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Ala 465 | His | Ser | Trp | | Thr 470 | Pro | Ser | Pro | Asp | Thr 475 | Leu | Pro | Thr | Ile | Thr 480 |
| Leu | Pro | Ala | Ser | Thr 485 | Val | Gly | Ser | Glu | Ser 490 | Ser | Leu | Ala | Leu | Arg 495 | Leu |
| Val | Asn | Gly | Gly 500 | Asp | Arg | Cys | Gln | Gly 505 | Arg | Val | Glu | Val | Leu 510 | Tyr | Arg |
| Gly | Ser | Trp 515 | Gly | Thr | Val | Суѕ | Asp 520 | Asp | Ser | Trp | Asp | Thr 525 | Asn | Asp | Ala |
| Asn | Val 530 | Val | Cys | Arg | Gln | Leu 535 | Gly | Сув | Gly | Trp | Ala 540 | Met | Leu | Ala | Pro |
| Gly 545 | Asn | Ala | Arg | Phe | Gly 550 | Gln | Gly | Ser | Gly | Pro 555 | Ile | Val | Leu | Asp | Asp 560 |
| Val | Arg | Cys | Ser | Gly 565 | Asn | Glu | Ser | Tyr | Leu 570 | Trp | Ser | Cys | Pro | His 575 | Asn |
| Gly | Trp | Leu | Ser 580 | His | Asn | Сув | Gly | His 585 | Ser | Glu | Asp | Ala | Gly 590 | Val | Ile |
| Cys | Ser | Gly 595 | Pro | Glu | Ser | Ser | Leu 600 | Ala | Leu | Arg | | Val 605 | Asn | Gly | Gly |
| Asp | Arg 610 | - | Gln | _ | _ | Val 615 | | Val | | Tyr | | Gly | Ser | Trp | Gly |
| Thr 625 | Val | Cys | Asp | Asp | Ser 630 | Trp | Asp | Thr | Asn | Asp 635 | Ala | Asn | Val | Val | Cys 640 |
| Arg | Gln | Leu | Gly | Cys 645 | Gly | Trp | Ala | Met | Ser 650 | Ala | Pro | Gly | Asn | Ala 655 | Arg |
| Phe | Gly | Gln | Gly 660 | Ser | Gly | Pro | Ile | Val 665 | Leu | Asp | Asp | Val | Arg 670 | Cys | Ser |
| al | 77.5 - | 01 11 | Cox | <i></i> | T 011 | Пин | Cor | Crrc | Drc | Λακ | λακ | Clv. | Trn | Lev | Sar |

His Asn Cys Gly His His Glu Asp Ala Gly Val Ile Cys Ser Ala Ala 690 695 700

Gln Ser Arg Ser Thr Pro Arg Pro Asp Thr Leu Ser Thr Ile Thr Leu 705 710 715 720

Pro Pro Ser Thr Val Gly Ser Glu Ser Ser Leu Thr Leu Arg Leu Val 725 730 735

Asn Gly Ser Asp Arg Cys Gln Gly Arg Val Glu Val Leu Tyr Arg Gly
740 745 750

Ser Trp Gly Thr Val Cys Asp Asp Ser Trp Asp Thr Asn Asp Ala Asn 755 760 765

Val Val Cys Arg Gln Leu Gly Cys Gly Trp Ala Thr Ser Ala Pro Gly 770 780

Asn Ala Arg Phe Gly Gln Gly Ser Gly Pro Ile Val Leu Asp Asp Val 785 790 795 800

Arg Cys Ser Gly His Glu Ser Tyr Leu Trp Ser Cys Pro His Asn Gly 805 810 815

Trp Leu Ser His Asn Cys Gly His His Glu Asp Ala Gly Val Ile Cys 820 825 830

Ser Val Ser Gln Ser Arg Pro Thr Pro Ser Pro Asp Thr Trp Pro Thr 835 840 845

Ser His Ala Ser Thr Ala Gly Pro Glu Ser Ser Leu Ala Leu Arg Leu 850 855 860

Val Asn Gly Gly Asp Arg Cys Gln Gly Arg Val Glu Val Leu Tyr Arg 865 870 875 880

Gly Ser Trp Gly Thr Val Cys Asp Asp Ser Trp Asp Thr Ser Asp Ala 885 890 895

Asn Val Val Cys Arg Gln Leu Gly Cys Gly Trp Ala Thr Ser Ala Pro 900 905 910

| Gly | Asn | Ala 915 | Arg | Phe | Gly | Gln | Gly 920 | Ser | Gly | Pro | Ile | Val 925 | Leı | ı Asj | p Asp |
|------------|-------------|------------|------------|------------|------------|------------|-------------|------------|------------|------------|------------|------------------|-----|--------------|--------------|
| Val | Arg 930 | Сув | Ser | Gly | Tyr | Glu 935 | Ser | Tyr | Leu | Trp | Ser 940 | Cys | Pro | Hi: | s Asn |
| Gly 945 | Trp | Leu | Ser | His | Asn 950 | Cys | Gln | His | Ser | Glu 955 | Asp | Ala | Gly | ⁄ Va. | l Ile 960 |
| Cys | Ser | Ala | Ala | His 965 | Ser | Trp | Ser | Thr | Pro 970 | Ser | Pro | Asp | Thr | 5 Let 975 | ı Pro |
| Thr | Ile | Thr | Leu 980 | Pro | Ala | Ser | Thr | Val 985 | Gly | Ser | Glu | Ser | Ser | | ı Ala |
| Leu | Arg | Leu 995 | Val | Asn · | Gly | Gly | Asp 1000 | | g Cys | s Gln | Gly | 100 | | al (| 3lu Val |
| Leu | Tyr 1010 | | ı Gly | Ser | Trp | Gly 101 | | nr Va | al Cy | /s As | | p 8 | Ser | Trp | Asp |
| Thr | Asn 1025 | _ |) Ala | Asn | Val | Val | _ | /s Ai | rg Gl | ln Le | | y (| Cys | Gly | Trp |
| Ala | Met 1040 | | · Ala | Pro | Gly | Asn 104 | | la Ai | rg Ph | ne Gl | | n (| ∃ly | Ser | Gly |
| Pro | Ile 1055 | | . Leu | Asp | Asp | Ala 106 | | g Cì | rs Se | er Gl | | s (65 | ∃lu | Ser | Tyr |
| Leu | Trp 1070 | | . Cys | | His | | | | | u Se | | s <i>I</i> 80 | Asn | Cys | Gly |
| His | Ser 1085 | | Asp | Ala | Gly | Val 109 | | .e Cy | s Se | er Al | | r 0 95 | Sln | Ser | Arg |
| Pro | Thr 1100 | | Ser | Pro | Asp | Thr 110 | | p Pr | o Th | ır Se | | s <i>P</i> 10 | Ala | Ser | Thr |
| Ala | Gly 1115 | | Glu | Ser | Ser | Leu 112 | | a Le | u Ar | g Le | | 1 A 25 | sn | Gly | Gly |

Asp Arg Cys Gln Gly Arg Val Glu Val Leu Tyr Arg Gly Ser Trp

| - | nr Val 145 | Cys | Asp | Asp | Tyr 1150 | _ | Asp, | Thr | Asn | Asp 1155 | | Asn | Val |
|----|---------------|-----|-----|-----|-------------|-----|------|-----|-----|-------------|-----|-----|-----|
| - | /s Arg L60 | Gln | Leu | Gly | Cys 1165 | | Trp | Ala | Met | Ser 1170 | | Pro | Gly |
| | la Arg 175 | Phe | Gly | Gln | Gly 1180 | Ser | Gly | Pro | Ile | Val 1185 | Leu | Asp | Asp |
| | g Cys 190 | Ser | Gly | His | Glu 1195 | Ser | Tyr | Leu | Trp | Ser 1200 | Cys | Pro | His |
| | ly Trp 205 | Leu | Ser | His | Asn 1210 | Cys | Gly | His | His | Glu 1215 | Asp | Ala | Gly |
| | e Cys 220 | Ser | Ala | Ser | Gln 1225 | Ser | | Pro | | Pro 1230 | Ser | Pro | Asp |
| | p Pro | Thr | Ser | His | Ala 1240 | Ser | Thr | Ala | Gly | Ser 1245 | Glu | Ser | Ser |
| | .a Leu !50 | Arg | Leu | Val | Asn 1255 | Gly | Gly | Asp | Arg | Cys 1260 | Gln | Gly | Arg |
| | u Val | Leu | Tyr | Arg | Gly 1270 | Ser | Trp | Gly | Thr | Val 1275 | Cys | Asp | Asp |
| 12 | p Asp | | | | 1285 | | | | | 1290 | | | |
| - | y Trp 95 | Ala | Thr | Ser | Ala 1300 | Pro | Gly | Asn | Ala | Arg 1305 | Phe | Gly | Gln |
| - | er Gly | Pro | Ile | Val | Leu 1315 | Asp | Asp | Val | Arg | Cys 1320 | Ser | Gly | His |
| | r Tyr 25 | Leu | Trp | Ser | Cys 1330 | Pro | His | Asn | Gly | Trp 1335 | Leu | Ser | His |
| _ | s Gly | His | His | Glu | Asp 1345 | Ala | Gly | Val | Ile | Cys 1350 | Ser | Ala | Ser |

| Gln | Ser 1355 | | Pro | Thr | Pro | Ser 1360 | | Asp | Thr | Trp | Pro 1365 | | Ser | His |
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| Ala | Ser 1370 | | Ala | Gly | Ser | Glu 1375 | | Ser | Leu | Ala | Leu 1380 | _ | Leu | Val |
| Asn | Gly 1385 | _ | Asp | Arg | Cys | Gln 1390 | _ | _ | Val | Glu | Val 1395 | | Tyr | Arg |
| Gly | Ser 1400 | Trp | Gly | Thr | Val | Cys 1405 | _ | Asp | Tyr | Trp | Asp 1410 | | Asn | Asp |
| Ala | Asn 1415 | Val | Val | Cys | Arg | Gln 1420 | Leu | Gly | Cys | Gly | Trp 1425 | Ala | Thr | Ser |
| Ala | Pro 1430 | Gly | Asn | Ala | Arg | Phe 1435 | Gly | Gln | Gly | Ser | Gly 1440 | Pro | Ile | Val |
| Leu | Asp 1445 | Asp | Val | Arg | Сув | Ser 1450 | Gly | His | Glu | Ser | Tyr 1455 | Leu | Trp | Ser |
| Cys | Pro 1460 | His | Asn | Gly | Trp | Leu 1465 | Ser | His | Asn | Cys | Gly 1470 | His | His | Glu |
| Asp | Ala 1475 | Gly | Val | Ile | Cys | Ser 1480 | Ala | Phe | Gln | Ser | Gln 1485 | Pro | Thr | Pro |
| Ser | Pro 1490 | Asp | Thr | Trp | Pro | Thr 1495 | Ser | Arg | Ala | Ser | Thr 1500 | Ala | Gly | Ser |
| Glu | Ser 1505 | Thr | Leu | Ala | Leu | Arg 1510 | Leu | Val | Asn | Gly | Gly 1515 | Asp | Arg | Cys |
| Arg | Gly 1520 | Arg | Val | Glu | Val | Leu 1525 | Tyr | Gln | Gly | Ser | Trp 1530 | Gly | Thr | Val |
| Cys | Asp 1535 | Asp | Tyr | Trp | Asp | Thr 1540 | Asn | Asp | Ala | Asn | Val 1545 | Val | Cys | Arg |
| Gln | Leu 1550 | Gly | Cys | Gly | Trp | Ala 1555 | Met | Ser | Ala | Pro | Gly 1560 | Asn | Ala | Gln |
| Phe | Gly | Gln | Gly | Ser | Gly | Pro | Ile | Val | Leu | Asp | Asp | Val | Arg | Cys |

| 1565 | 1570 | 1575 |
|------|------|------|
| | | |

| Ser | Gly 1580 | | Glu | Pro | Tyr | Leu 1585 | _ | Ser | Cys | Pro | His 1590 | | Gly | Trp |
|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|
| Leu | Ser 1595 | | Asn | Cys | Gly | His 1600 | | Glu | Asp | Ala | Gly 1605 | | Ile | Cys |
| Ser | Ala 1610 | Ala | Gln | Ser | Gln | Ser 1615 | Thr | Pro | Arg | Pro | Asp 1620 | Thr | Trp | Leu |
| Thr | Thr 1625 | | Leu | Pro | Ala | Leu 1630 | | Val | Gly | Ser | Glu 1635 | | Ser | Leu |
| Ala | Leu 1640 | Arg | Leu | Val | Asn | Gly 1645 | Gly | Asp | Arg | Сув | Arg 1650 | Gly | Arg | Val |
| Glu | Val 1655 | Leu | Tyr | Arg | Gly | Ser 1660 | Trp | Gly | Thr | Val | Cys 1665 | Asp | Asp | Ser |
| Trp | Asp 1670 | Thr | Asn | Asp | Ala | Asn 1675 | | Val | Cys | Arg | Gln 1680 | Leu | Gly | Cys |
| Gly | Trp 1685 | Ala | Met | Ser | Ala | Pro 1690 | _ | | Ala | Arg | Phe 1695 | Gly | Gln | Gly |
| Ser | Gly 1700 | Pro | Ile | Val | Leu | Gly 1705 | _ | Val | Arg | Cys | Ser 1710 | Gly | Asn | Glu |
| Ser | Tyr 1715 | Leu | Trp | Ser | Ċys | Pro 1720 | His | Lys | Gly | Trp | Leu 1725 | Thr | His | Asn |
| Cys | Gly 1730 | His | His | Glu | Asp | Ala 1735 | Gly | Val | Ile | Cys | Ser 1740 | Ala | Thr | Gln |
| Ile | Asn 1745 | Ser | Thr | Thr | Thr | Asp 1750 | Trp | Trp | His | Pro | Thr 1755 | Thr | Thr | Thr |
| Thr | Ala 1760 | Arg | Pro | Ser | Ser | Asn 1765 | Cys | Gly | Gly | Phe | Leu 1770 | Phe | Tyr | Ala |
| Ser | Gly 1775 | Thr | Phe | Ser | Ser | Pro 1780 | Ser | Tyr | Pro | Ala | Tyr 1785 | Tyr | Pro | Asn |

| Asn | Ala 1790 | | Cys | Val | Trp | Glu 1795 | | Glu | Val | Asn | Ser 1800 | | Tyr | Arg |
|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|
| Ile | Asn 1805 | | Gly | Phe | Ser | Asn 1810 | | Lys | Leu | Glu | Ala 1815 | | His | Asn |
| Cys | Ser 1820 | | Asp | Tyr | Val | Glu 1825 | | Phe | Asp | Gly | Ser 1830 | Leu | Asn | Ser |
| Ser | Leu 1835 | | Leu | Gly | Lys | Ile 1840 | _ | Asn | Asp | Thr | Arg 1845 | | Ile | Phe |
| | Ser 1850 | Ser | Tyr | Asn | Arg | Met 1855 | | Ile | His | Phe | Arg 1860 | | Asp | Ile |
| Ser | Phe 1865 | Gln | Asn | Thr | Gly | Phe 1870 | Leu | Ala | Trp | Tyr | Asn 1875 | Ser | Phe | Pro |
| Ser | Asp 1880 | Ala | Thr | Leu | Arg | Leu 1885 | Val | Asn | Leu | Asn | Ser 1890 | Ser | Tyr | Gly |
| Leu | Cys 1895 | Ala | Gly | Arg | Val | Glu 1900 | Ile | Tyr | His | Gly | Gly 1905 | Thr | Trp | Gly |
| Ala | Val 1910 | Cys | Asp | Asp | Ser | Trp 1915 | Thr | Ile | Gln | Glu | Ala 1920 | Glu | Val | Val |
| Cys | Arg 1925 | Gln | Leu | Gly | Cys | Gly 1930 | Arg | Ala | Val | Ser | Ala 1935 | Leu | Gly | Asn |
| Ala | Tyr 1940 | Phe | Gly | Ser | Gly | Ser 1945 | Gly | Pro | Ile | Thr | Leu 1950 | Asp | Asp | Val |
| Glu | Cys 1955 | Ser | Gly | Thr | Glu | Ser 1960 | Thr | Leu | Trp | Gln | Cys 1965 | Arg | Asn | Arg |
| Gly | Trp 1970 | Phe | Ser | His | Asn | Cys 1975 | Asn | His | Arg | Glu | Asp 1980 | Ala | Gly | Val |
| Ile | Cys 1985 | Ser | Gly | Asn | His | Leu 1990 | Ser | Thr | Pro | Ala | Pro 1995 | Phe | Leu | Asn |
| Ile | Thr | Arg | Pro | Asn | Asn | Tyr | Ser | Cys | Gly | Gly | Phe | Leu | Ser | Gln |

| 2000 | 2005 | 2010 |
|------|------|------|
| | | |

| Pro | Ser 2015 | _ | Asp | Phe | Ser | Ser 2020 | | Phe | Tyr | Pro | Gly 2025 | | Tyr | Pro |
|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|
| Asn | Asn 2030 | | Lys | Cys | Val | Trp 2035 | _ | Ile | Glu | Val | Gln 2040 | | Asn | Tyr |
| Arg | Val 2045 | | Val | Ile | Phe | Arg 2050 | | Val | Gln | Leu | Glu 2055 | | Gly | Cys |
| Asn | Tyr 2060 | Asp | Tyr | Ile | Glu | Val 2065 | | Asp | Gly | Pro | Tyr 2070 | | Ser | Ser |
| Pro | Leu 2075 | Ile | Ala | Arg | Val | Cys 2080 | - | Gly | Ala | Arg | Gly 2085 | Ser | Phe | Thr |
| Ser | Ser 2090 | Ser | Asn | Phe | Met | Ser 2095 | | Arg | Phe | Ile | Ser 2100 | Asp | His | Ser |
| Ile | Thr 2105 | Arg | Arg | Gly | Phe | Arg 2110 | | Glu | Tyr | Tyr | Ser 2115 | Ser | Pro | Ser |
| Asn | Asp 2120 | Ser | Thr | Asn | Leu | Leu 2125 | _ | Leu | Pro | Asn | His 2130 | Met | Gln | Ala |
| Ser | Val 2135 | Ser | Arg | Ser | Tyr | Leu 2140 | | Ser | Leu | | Phe 2145 | Ser | Ala | Ser |
| Asp | Leu 2150 | Val | Ile | Ser | Thr | Trp 2155 | Asn | Gly | Tyr | Tyr | Glu 2160 | Cys | Arg | Pro |
| Gln | Ile 2165 | Thr | Pro | Asn | Leu | Val 2170 | Ile | Phe | Thr | Ile | Pro 2175 | Tyr | Ser | Gly |
| Cys | Gly 2180 | Thr | Phe | Lys | Gln | Ala 2185 | Asp | Asn | Asp | Thr | Ile 2190 | Asp | Tyr | Ser |
| Asn | Leu 2195 | Leu | Thr | Ala | Ala | Val 2200 | Ser | Gly | Gly | Ile | Ile 2205 | Lys | Arg | Arg |
| Thr | Asp 2210 | Leu | Arg | Ile | His | Val 2215 | Ser | Cys | Arg | Met | Leu 2220 | Gln | Asn | Thr |

| Tr | o Val 2225 | - | Thr | Met | Tyr | Ile 2230 | | Asn | Asp | Thr | Ile 2235 | | Val | Ala |
|---|---------------|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|
| Ası | n Asn 2240 | | Ile | Gln | Val | Glu 2245 | | Val | Gln | Tyr | Gly 2250 | | Phe | Asp |
| Va: | l Asn 2255 | | Ser | Phe | _ | Thr 2260 | | Ser | Ser | Phe | Leu 2265 | _ | Pro | Val |
| Th | Ser 2270 | _ | Pro | Tyr | Tyr | Val 2275 | _ | Leu | Asn | Gln | Asp 2280 | | Tyr | Val |
| Glı | n Ala 2285 | | Ile | Leu | His | Ser 2290 | | Ala | Val | Leu | Thr 2295 | Leu | Phe | Val |
| Asp | Thr 2300 | | Val | Ala | Ser | Pro 2305 | Tyr | Ser | Asn | Asp | Phe 2310 | Thr | Ser | Leu |
| Thi | Tyr 2315 | | Leu | Ile | | Ser 2320 | Gly | Cys | Val | Arg | Asp 2325 | Asp | Thr | Tyr |
| GlΣ | Pro 2330 | _ | Ser | Ser | Pro | Ser 2335 | Leu | Arg | Ile | Ala | Arg 2340 | Phe | Arg | Phe |
| Arg | Ala 2345 | Phe | His | Phe | | Asn 2350 | Arg | Phe | Pro | Ser | Val 2355 | Tyr | Leu | Arg |
| Cys | Lys 2360 | Met | Val | Val | Cys | Arg 2365 | Ala | Tyr | Asp | Pro | Ser 2370 | Ser | Arg | Cys |
| Tyr | Arg 2375 | Gly | Cys | Val | Leu | Arg 2380 | Ser | Lys | Arg | Asp | Val 2385 | Gly | Ser | Tyr |
| Glr | Glu 2390 | Lys | Val | Asp | Val | Val 2395 | Leu | Gly | Pro | Ile | Gln 2400 | Leu | Gln | Thr |
| Pro | Pro 2405 | Arg | Arg | Glu | Glu | Glu 2410 | Pro | Arg | | | | | | |
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Val Leu Ser Thr Gly Gly Trp Ile Pro Arg Thr Thr Asp Tyr Ala Ser 20 25 30

Leu Ile Pro Ser Glu Val Pro Leu Asp Gln Thr Val Ala Glu Gly Ser 35 40 45

Pro Phe Pro Ser Glu Ser Thr Leu Glu Ser Thr Ala Ala Glu Gly Ser 50 55 60

Pro Ile Ser Leu Glu Ser Thr Leu Glu Ser Thr Val Ala Glu Gly Ser 65 70 75 80

Leu Ile Pro Ser Glu Ser Thr Leu Glu Ser Thr Val Ala Glu Gly Ser 85 90 95

Asp Ser Gly Leu Ala Leu Arg Leu Val Asn Gly Asp Gly Arg Cys Gln
100 105 110

Gly Arg Val Glu Ile Leu Tyr Arg Gly Ser Trp Gly Thr Val Cys Asp 115 120 125

Asp Ser Trp Asp Thr Asn Asp Ala Asn Val Val Cys Arg Gln Leu Gly 130 135 140

Cys Gly Trp Ala Met Ser Ala Pro Gly Asn Ala Trp Phe Gly Gln Gly 145 150 155 160

Ser Gly Pro Ile Ala Leu Asp Asp Val Arg Cys Ser Gly His Glu Ser 165 170 175

Tyr Leu Trp Ser Cys Pro His Asn Gly Trp Leu Ser His Asn Cys Gly
180 185 190

His Gly Glu Asp Ala Gly Val Ile Cys Ser Ala Ala Gln Pro Gln Ser 195 200 205

Thr Leu Arg Pro Glu Ser Trp Pro Val Arg Ile Ser Pro Pro Val Pro 210 215 220

| Thr 225 | Glu | Gly | Ser | Glu | Ser 230 | Ser | Leu | Ala | Léu | Arg 235 | Leu | Val | Asn | Gly | Gly 240 |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Asp | Arg | Cys | Arg | Gly 245 | Arg | Val | Glu | Val | Leu 250 | Tyr | Arg | Gly | Ser | Trp 255 | Gly |
| Thr | Val | Cys | Asp 260 | Asp | Tyr | Trp | Asp | Thr 265 | Asn | Asp | Ala | Asn | Val 270 | Val | Cys |
| Arg | Gln | Leu 275 | Gly | Cys | Gly | Trp | Ala 280 | Met | Ser | Ala | Pro | Gly 285 | Asn | Ala | Gln |
| Phe | Gly 290 | Gln | Gly | Ser | Gly | Pro 295 | Ile | Val | Leu | Asp | Asp 300 | Val | Arg | Cys | Ser |
| Gly 305 | His | Glu | Ser | Tyr | Leu 310 | Trp | Ser | Cys | Pro | His 315 | Asn | Gly | Trp | Leu | Thr 320 |
| His | Asn | Cys | Gly | His 325 | Ser | Glu | Asp | Ala | Gly 330 | Val | Ile | Cys | Ser | Ala 335 | Pro |
| Gln | Ser | Arg | Pro 340 | Thr | Pro | Ser | Pro | Asp 345 | Thr | Trp | Pro | Thr | Ser 350 | His | Ala |
| Ser | Thr | Ala 355 | Gly | Pro | Glu | Ser | Ser 360 | Leu | Ala | Leu | Arg | Leu 365 | Val | Asn | Gly |
| Gly | Asp 370 | Arg | Cys | Gln | Gly | Arg 375 | Val | Glu | Val | Leu | Tyr 380 | Arg | Gly | Ser | Trp |
| Gly 385 | Thr | Val | Cys | Asp | Asp 390 | Ser | Trp | Asp | Thr | Ser 395 | Asp | Ala | Asn | Val | Val 400 |
| Cys | Arg | Gln | Leu | Gly 405 | Cys | Gly | Trp | Ala | Thr 410 | Ser | Ala | Pro | Gly | Asn 415 | Ala |
| Arg | Phe | Gly | Gln 420 | Gly | Ser | Gly | Pro | Ile 425 | Val | Leu | Asp | Asp | Val 430 | Arg | Cys |
| Ser | Gly | Tyr 435 | Glu | Ser | Tyr | Leu | Trp 440 | Ser | Cys | Pro | His | Asn 445 | Gly | Trp | Leu |
| Ser | His 450 | Asn | Cys | Gln | His | Ser 455 | Glu | Asp | Ala | Gly | Val 460 | Ile | Cys | Ser | Ala |

| Ala 465 | His | Ser | Trp | Ser | Thr 470 | Pro | Ser | Pro | Asp | Thr 475 | Leu | Pro | Thr | Ile | Thr 480 |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Leu | Pro | Ala | Ser | Thr 485 | Val | Gly | Ser | Glu | Ser 490 | Ser | Leu | Ala | Leu | Arg 495 | Leu |
| Val | Asn | Gly | Gly 500 | Asp | Arg | Сув | Gln | Gly 505 | Arg | Val | Glu | Val | Leu 510 | Tyr | Arg |
| Gly | Ser | Trp 515 | Gly | Thr | Val | Cys | Asp 520 | Asp | Ser | Trp | Asp | Thr 525 | Asn | Asp | Ala |
| Asn | Val 530 | Val | Суѕ | Arg | Gln | Leu 535 | Gly | Cys | Gly | Trp | Ala 540 | Met | Leu | Ala | Pro |
| Gly 545 | Asn | Ala | Arg | Phe | Gly 550 | Gln | Gly | Ser | Gly | Pro 555 | Ile | Val | Leu | Asp | Asp 560 |
| Vaļ | Arg | Cys | Ser | Gly 565 | Asn | Glu | Ser | Tyr | Leu 570 | Trp | Ser | Cys | Pro | His 575 | Asn |
| Gly | Trp | Leu | Ser 580 | His | Asn | Cys | Gly | His 585 | Ser | Glu | Asp | Ala | Gly 590 | Val | Ile |
| Cys | Ser | Gly 595 | Pro | Glu | Ser | Ser | Leu 600 | Ala | Leu | Arg | Leu | Val 605 | Asn | Gly | Gly |
| Asp | Arg 610 | Cys | Gln | Gly | Arg | Val 615 | Glu | Val | Leu | Tyr | Arg 620 | Gly | Ser | Trp | Gly |
| Thr 625 | Val | Cys | Asp | Asp | Ser 630 | Trp | Asp | Thr | Asn | Asp 635 | Ala | Asn | Val | Val | Cys 640 |
| Arg | Gln | Leu | Gly | Cys 645 | Gly | Trp | Ala | Met | Ser 650 | Ala | Pro | Gly | Asn | Ala 655 | Arg |
| Phe | Gly | Gln | Gly 660 | Ser | Gly | Pro | Ile | Val 665 | Leu | Asp | Asp | Val | Arg 670 | Cys | Ser |
| Gly | His | Glu 675 | Ser | Tyr | Leu | Trp | Ser 680 | Cys | Pro | Asn | Asn | Gly 685 | Trp | Leu | Ser |

| His | Asn 690 | Cys | Gly | His | His | Glu 695 | Asp | Ala | Gly | Val | Ile 700 | Cys | Ser | Ala | Ala |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Gln 705 | Ser | Arg | Ser | Thr | Pro 710 | Arg | Pro | Asp | Thr | Leu 715 | Ser | Thr | Ile | Thr | Leu 720 |
| Pro | Pro | Ser | Thr | Val 725 | Gly | Ser | Glu | Ser | Ser 730 | Leu | Thr | Leu | Arg | Leu 735 | Val |
| Asn | Gly | Ser | Asp 740 | Arg | Cys | Gln | Gly | Arg 745 | Val | Glu | Val | Leu | Tyr 750 | | Gly |
| Ser | Trp | Gly 755 | Thr | Val | Cys | Asp | Asp 760 | Ser | Trp | Asp | Thr | Asn 765 | Asp | Ala | Asn |
| Val | Val 770 | Cys | Arg | Gln | Leu | Gly 775 | Cys | Gly | Trp | Ala | Met 780 | Ser | Ala | Pro | Gly |
| Asn 785 | Ala | Arg | Phe | Gly | Gln 790 | Gly | Ser | Gly | Pro | Ile 795 | Val | Leu | Asp | Asp | Val 800 |
| Arg | Cys | Ser | Gly | His 805 | Glu | Ser | Tyr | Leu | Trp 810 | Ser | Cys | Pro | His | Asn 815 | Gly |
| Trp | Leu | Ser | His 820 | Asn | Cys | Gly | His | His 825 | Glu | Asp | Ala | Gly | Val 830 | Ile | Cys |
| Ser | Val | Ser 835 | Gln | Ser | Arg | Pro | Thr 840 | Pro | Ser | Pro | Asp | Thr 845 | Trp | Pro | Thr |
| Ser | His 850 | Ala | Ser | Thr | Ala | Gly 855 | Ser | Glu | Ser | Ser | Leu 860 | Ala | Leu | Arg | Leu |
| Val 865 | Asn | Gly | Gly | Asp | Arg 870 | Cys | Gln | Gly | Arg | Val 875 | Glu | Val | Leu | Tyr | Arg 880 |
| Gly | Ser | Trp | Gly | Thr 885 | Val | Cys | Asp | Asp | Ser 890 | Trp | Asp | Thr | Ser | Asp 895 | Ala |
| Asn | Val | Val | Cys 900 | Arg | Gln | Leu | Gly | Cys 905 | Gly | Trp | Ala | Thr | Ser 910 | Ala | Pro |
| Gly | Asn | Ala 915 | Arg | Phe | Gly | Gln | Gly 920 | Ser | Gly | Pro | Ile | Val 925 | Leu | Asp | Asp |

Val Arg Cys Ser Gly Tyr Glu Ser Tyr Leu Trp Ser Cys Pro His Asn Gly Trp Leu Ser His Asn Cys Gln His Ser Glu Asp Ala Gly Val Ile Cys Ser Ala Ala His Ser Trp Ser Thr Pro Ser Pro Asp Thr Leu Pro Thr Ile Thr Leu Pro Ala Ser Thr Val Gly Ser Glu Ser Ser Leu Ala Leu Arg Leu Val Asn Gly Gly Asp Arg Cys Gln Gly Arg Val Glu Val Leu Tyr Gln Gly Ser Trp Gly Thr Val Cys Asp Asp Ser Trp Asp Thr Asn Asp Ala Asn Val Val Cys Arg Gln Pro Gly Cys Gly Trp Ala Met Ser Ala Pro Gly Asn Ala Arg Phe Gly Gln Gly Ser Gly Pro Ile Val Leu Asp Asp Val Arg Cys Ser Gly His Glu Ser Tyr Pro Trp Ser Cys Pro His Asn Gly Trp Leu Ser His Asn Cys Gly His Ser Glu Asp Ala Gly Val Ile Cys Ser Ala Ser Gln Ser Arg Pro Thr Pro Ser Pro Asp Thr Trp Pro Thr Ser His Ala Ser Thr Ala Gly Ser Glu Ser Ser Leu Ala Leu Arg Leu Val Asn Gly Gly

1130 1135

Asp Arg Cys Gln Gly Arg Val Glu Val Leu Tyr Arg Gly Ser Trp

| Gly | Thr 1145 | | Cys | Asp | Asp | Tyr 1150 | | Asp | Thr | Asn | Asp 1155 | | Asn | Val |
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| Val | Cys 1160 | | Gln | Leu | Gly | Cys 1165 | | Trp | Ala | Met | Ser 1170 | | . Pro | Gly |
| Asn | Ala 1175 | _ | Phe | Gly | Gln | Gly 1180 | | Gly | Pro | Ile | Val 1185 | | Asp | Asp |
| Val | Arg 1190 | | Ser | Gly | His | Glu 1195 | | Tyr | Leu | Trp | Ser 1200 | _ | Pro | His |
| Asn | Gly 1205 | - | Leu | Ser | His | Asn 1210 | _ | Gly | His | His | Glu 1215 | _ | Ala | Gly |
| Val | Ile 1220 | | Ser | Ala | Ser | Gln 1225 | | Gln | Pro | Thr | Pro 1230 | | Pro | Asp |
| Thr | Trp 1235 | | Thr | Ser | His | Ala 1240 | | Thr | Ala | Gly | Ser 1245 | | Ser | Ser |
| Leu | Ala 1250 | | Arg | Leu | Val | Asn 1255 | | Gly | Asp | Arg | Cys 1260 | Gln | Gly | Arg |
| Val | Glu 1265 | Val | Leu | Tyr | Arg | Gly 1270 | Ser | Trp | Gly | Thr | Val 1275 | Cys | Asp | Asp |
| Tyr | Trp 1280 | Asp | Thr | Asn | Asp | Ala 1285 | Asn | Val | Val | Cys | Arg 1290 | Gln | Leu | Gly |
| Cys | Gly 1295 | Trp | Ala | Thr | Ser | Ala 1300 | Pro | Gly | Asn | Ala | Arg 1305 | Phe | Gly | Gln |
| Gly | Ser 1310 | Gly | Pro | Ile | Val | Leu 1315 | Asp | Asp | Val | Arg | Cys 1320 | Ser | Gly | His |
| Glu | Ser 1325 | Tyr | Leu | Trp | Ser | Cys 1330 | Pro | His | Asn | Gly | Trp 1335 | Leu | Ser | His |
| Asn | Cys 1340 | Gly | His | His | Glu | Asp 1345 | Ala | Gly | Val | Ile | Cys 1350 | Ser | Ala | Ser |
| Gln | Ser 1355 | Gln | Pṛo | Thr | Pro | Ser 1360 | Pro | Asp | Thr | Trp | Pro 1365 | Thr | Ser | His |

| Ala | Ser 1370 | | Ala | Gly | Ser | Glu 1375 | | Ser | Leu | Ala | Leu 1380 | | Leu | Val |
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| Asn | Gly 1385 | Gly | Asp | Arg | Cys | Gln 1390 | _ | Arg | Val | Glu | Val 1395 | | Tyr | Arg |
| Gly | Ser 1400 | | Gly | Thr | Val | Cys 1405 | | Asp | Tyr | Trp | Asp 1410 | | Asn | Asp |
| Ala | Asn 1415 | | Val | Cys | Arg | Gln 1420 | | Gly | Cys | Gly | Trp 1425 | | Thr | Ser |
| Ala | Pro 1430 | | Asn | Ala | Arg | Phe 1435 | | Gln | Gly | Ser | Gly 1440 | | Ile | Val |
| Leu | Asp 1445 | _ | Val | Arg | Cys | Ser 1450 | _ | His | Glu | Ser | Tyr 1455 | | Trp | Ser |
| Cys | Pro 1460 | His | Asn | Gly | Trp | Leu 1465 | Ser | His | Asn | Cys | Gly 1470 | His | His | Glu |
| Asp | Ala 1475 | _ | Val | Ile | Cys | Ser 1480 | | Ser | Gln | Ser | Gln 1485 | Pro | Thr | Pro |
| Ser | Pro 1490 | Asp | Thr | Trp | Pro | Thr 1495 | Ser | Arg | Ala | Ser | Thr 1500 | Ala | Gly | Ser |
| Glu | Ser 1505 | Thr | Leu | Ala | Leu | Arg 1510 | Leu | Val | Asn | Gly | Gly 1515 | Asp | Arg | Cys |
| | | | | | | Leu 1525 | | | | | | | Thr | Val |
| Cys | Asp 1535 | Asp | Tyr | Trp | Asp | Thr 1540 | Asn | Asp | Ala | Asn | Val 1545 | Val | Cys | Arg |
| Gln | Leu 1550 | Gly | Cys | Gly | Trp | Ala 1555 | Met | Ser | Ala | Pro | Gly 1560 | Asn | Ala | Gln |
| Phe | Gly 1565 | Gln | Gly | Ser | Gly | Pro 1570 | Ile | Val | Leu | Asp | Asp 1575 | Val | Arg | Cys |

| Ser | Gly 1580 | His | Glu | Ser | Tyr | Leu 1585 | | Ser | Cys | Pro | His 1590 | | Gly | Trp |
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| Leu | Ser 1595 | His | Asn | Cys | Gly | His 1600 | His | Glu | Asp | Ala | Gly 1605 | Val | Ile | Cys |
| Ser | Ala 1610 | | Gln | Ser | Gln | Ser 1615 | Thr | Pro | Arg | Pro | Asp 1620 | Thr | Trp | Leu |
| Thr | Thr 1625 | | Leu | Pro | Ala | Leu 1630 | | Val | Gly | Ser | Glu 1635 | | Ser | Leu |
| Ala | Leu 1640 | | Leu | Val | Asn | Gly 1645 | | Asp | Arg | Cys | Arg 1650 | | Arg | Val |
| Glu | Val 1655 | | Tyr | Arg | Gly | Ser 1660 | | Gly | Thr | Val | Cys 1665 | Asp | Asp | Ser |
| Trp | Asp 1670 | | Asn | Asp | Ala | Asn 1675 | | Val | Cys | Arg | Gln 1680 | Leu | Gly | Cys |
| Gly | Trp 1685 | Ala | Met | Ser | Ala | Pro 1690 | | Asn | Ala | Arg | Phe 1695 | Gly | Gln | Gly |
| Ser | Gly 1700 | Pro | Ile | Val | Leu | Asp 1705 | Asp | Val | Arg | Cys | Ser 1710 | Gly | Asn | Glu |
| Ser | Tyr 1715 | Leu | Trp | Ser | Cys | Pro 1720 | His | Lys | Gly | Trp | Leu 1725 | Thr | His | Asn |
| Cys | Gly 1730 | His | His | Glu | Asp | Ala 1735 | Gly | Val | Ile | Cys | Ser 1740 | Ala | Thr | Gln |
| Ile | Asn 1745 | Ser | Thr | Thr | Thr | Asp 1750 | Trp | Trp | His | Pro | Thr 1755 | Thr | Thr | Thr |
| Thr | Ala 1760 | Arg | Pro | Ser | Ser | Asn 1765 | Cys | Gly | Gly | Phe | Leu 1770 | Phe | Tyr | Ala |
| Ser | Gly 1775 | Thr | Phe | Ser | Ser | Pro 1780 | Ser | Tyr | Pro | Ala | Tyr 1785 | Tyr | Pro | Asn |
| Asn | Ala 1790 | Lys | Cys | Val | Trp | Glu 1795 | Ile | Glu | Val | Asn | Ser 1800 | Gly | Tyr | Arg |

| Ile | Asn 1805 | | Gly | Phe | Ser | Asn 1810 | | Lys | Leu | Glu | Ala 1815 | His | His | Asn |
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| Cys | Ser 1820 | Phe | Asp | Tyr | Val | Glu 1825 | | Phe | Asp | Gly | Ser 1830 | Leu | Asn | Ser |
| Ser | Leu 1835 | Leu | Leu | Gly | Lys | Ile 1840 | | Asn | Asp | Thr | Arg 1845 | Gln | Ile | Phe |
| Thr | Ser 1850 | Ser | Tyr | Asn | Arg | Met 1855 | | Ile | His | Phe | Arg 1860 | Ser | Asp | Ile |
| Ser | Phe 1865 | Gln | Asn | Thr | Gly | Phe 1870 | Leu | Ala | Trp | Tyr | Asn 1875 | Ser | Phe | Pro |
| Ser | Asp 1880 | Ala | Thr | Leu | Arg | Leu 1885 | Val | Asn | Leu | Asn | Ser 1890 | Ser | Tyr | Gly |
| Leu | Cys 1895 | Ala | Gly | Arg | Val | Glu 1900 | Ile | Tyr ; | His | Gly | Gly 1905 | Thr | Trp | Gly |
| Thr | Val 1910 | Cys | Asp | Asp | Ser | Trp 1915 | Thr | Ile | Gln | Glu | Ala 1920 | Glu | Val | Val |
| - | 1925 | | | | | Gly 1930 | | | | | 1935 | | | |
| Ala | Tyr 1940 | Phe | Gly | Ser | Gly | Ser 1945 | Gly | Pro | Ile | Thr | Leu 1950 | Asp | Asp | Val |
| Glu | Cys 1955 | Ser | Gly | Thr | | Ser 1960 | | Leu | Trp | | Cys 1965 | | Asn | Arg |
| Gly | Trp 1970 | Phe | Ser | His | Asn | Cys 1975 | Asn | His | Arg | Glu | Asp 1980 | Ala | Gly | Val |
| Ile | Cys 1985 | Ser | Gly | Asn | His | Leu 1990 | Ser | Thr | Pro | Ala | Pro 1995 | Phe | Leu | Asn |
| Ile | Thr 2000 | Arg | Pro | Asn | Thr | Asp 2005 | Tyr | Ser | Cys | Gly | Gly 2010 | Phe | Leu | Ser |

| Gln | Pro 2015 | | Gly | Asp | Phe | Ser 2020 | | Pro | Phe | Tyr | Pro 2025 | _ | Asn | Tyr |
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| Pro | Asn 2030 | | Ala | Lys | Cys | Val 2035 | | Asp | Ile | Glu | Val 2040 | | Asn | Asn |
| Tyr | Arg 2045 | | Thr | Val | Ile | Phe 2050 | _ | Asp | Val | Gln | Leu 2055 | | Gly | Gly |
| Cys | Asn 2060 | _ | Asp | Tyr | Ile | Glu 2065 | | Phe | Asp | Gly | Pro 2070 | | Arg | Ser |
| Ser | Pro 2075 | Leu | Ile | Ala | Arg | Val 2080 | - | Asp | Gly | Ala | Arg 2085 | Gly | Ser | Phe |
| Thr | Ser 2090 | | Ser | . Asn | Phe | Met 2095 | | Ile | Arg | Phe | Ile 2100 | | Asp | His |
| Ser | Ile 2105 | Thr | Arg | Arg | Gly | Phe 2110 | | Ala | Glu | Tyr | Tyr 2115 | Ser | Ser | Pro |
| Ser | Asn 2120 | | Ser | Thr | Asn | Leu 2125 | | Cys | Leu | Pro | Asn 2130 | His | Met | Gln |
| Ala | Ser 2135 | | Ser | Arg | | Tyr 2140 | | Gln | Ser | Leu | Gly 2145 | Phe | Ser | Ala |
| Ser | Asp 2150 | | Val | Ile | | Thr 2155 | Trp | Asn | Gly | Tyr | Tyr 2160 | Glu | Cys | Arg |
| Pro | Gln 2165 | Ile | Thr | Pro | Asn | Leu 2170 | Val | Ile | Phe | Thr | Ile 2175 | Pro | Tyr | Ser |
| Gly | Cys 2180 | Gly | Thr | Phe | Lys | Gln 2185 | Ala | Asp | Asn | Asp | Thr 2190 | Ile | Asp | Tyr |
| Ser | Asn 2195 | Phe | Leu | Thr | Ala | Ala 2200 | Val | Ser | Gly | Gly | Ile 2205 | Ile | Lys | Arg |
| Arg | Thr 2210 | Asp | Leu | Arg | Ile | His 2215 | Val | Ser | Cys | Arg | Met 2220 | Leu | Gln | Asn |
| Thr | Trp 2225 | Val | Asp | Thr | Met | Tyr 2230 | Ile | Ala | Asn | Asp | Thr 2235 | Ile | His | Val |

| Ala Asn Asn 2240 | Thr Ile | Gln Val 2245 | | Val Gln | 2250 | Gly | Asn | Phe |
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| Asp Val Asn 2255 | Ile Ser | Phe Tyr 2260 | | | Phe 2265 | Leu | Tyr | Pro |
| Val Thr Ser 2270 | Arg Pro | Tyr Tyr 2275 | | Leu Asn | Gln 2280 | Asp | Leu | Tyr |
| Val Gln Ala 2285 | Glu Ile | Leu His 2290 | | Ala Val | Leu 2295 | Thr | Leu | Phe |
| Val Asp Thr 2300 | Cys Val | Ala Ser 2305 | | Ser Asn | Asp 2310 | Phe | Thr | Ser |
| Leu Thr Tyr 2315 | Asp Leu | Ile Arg 2320 | | Cys Val | Arg 2325 | Asp | Asp | Thr |
| Tyr Gly Pro 2330 | Tyr Ser | Ser Pro 2335 | | Arg Ile | Ala 2340 | Arg | Phe | Arg |
| Phe Arg Ala 2345 | Phe His | Phe Leu 2350 | | Phe Pro | Ser 2355 | Val | Tyr | Leu |
| Arg Cys Lys 2360 | Met Val | Val Cys 2365 | | Tyr Asp | Pro 2370 | Ser | Ser | Arg |
| Cys Tyr Arg 2375 | Gly Cys | Val Leu 2380 | | Lys Arg | Asp 2385 | Val | Gly | Ser |
| Tyr Gln Glu 2390 | Lys Val | Asp Val 2395 | Val Leu | Gly Pro | Ile 2400 | Gln | Leu | Gln |
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35 40 45

Arg Asp Gly Arg Asp Gly Arg Glu Gly Pro Arg Gly Glu Lys Gly Asp 50 55 60

Pro Gly Leu Pro Gly Pro Met Gly Leu Ser Gly Leu Gln Gly Pro Thr 65 70 75 80

Gly Pro Val Gly Pro Lys Gly Glu Asn Gly Ser Ala Gly Glu Pro Gly 85 90 95

Pro Lys Gly Glu Arg Gly Leu Ser Gly Pro Pro Gly Leu Pro Gly Ile 100 105 110

Pro Gly Pro Ala Gly Lys Glu Gly Pro Ser Gly Lys Gln Gly Asn Ile 115 120 125

Gly Pro Gln Gly Lys Pro Gly Pro Lys Gly Glu Ala Gly Pro Lys Gly 130 135 140

Glu Val Gly Ala Pro Gly Met Gln Gly Ser Thr Gly Ala Lys Gly Ser 145 150 155 160

Thr Gly Pro Lys Gly Glu Arg Gly Ala Pro Gly Val Gln Gly Ala Pro 165 170 175

Gly Asn Ala Gly Ala Ala Gly Pro Ala Gly Pro Ala Gly Pro Gln Gly
180 185 190

Ala Pro Gly Ser Arg Gly Pro Pro Gly Leu Lys Gly Asp Arg Gly Val

Pro Gly Asp Arg Gly Ile Lys Gly Glu Ser Gly Leu Pro Asp Ser Ala 210 215 220

Ala Leu Arg Gln Gln Met Glu Ala Leu Lys Gly Lys Leu Gln Arg Leu 225 230 235 240

Glu Val Ala Phe Ser His Tyr Gln Lys Ala Ala Leu Phe Pro Asp Gly 245 250 Arg Ser Val Gly Asp Lys Ile Phe Arg Thr Ala Asp Ser Glu Lys Pro 260 265 Phe Glu Asp Ala Gln Glu Met Cys Lys Gln Ala Gly Gly Gln Leu Ala 275 280 Ser Pro Arg Ser Ala Thr Glu Asn Ala Ile Gln Gln Leu Ile Thr 290 295 Ala His Asn Lys Ala Ala Phe Leu Ser Met Thr Asp Val Gly Thr Glu 305 310 315 Gly Lys Phe Thr Tyr Pro Thr Gly Glu Pro Leu Val Tyr Ser Asn Trp 325 330 Ala Pro Gly Glu Pro Asn Asn Gly Gly Ala Glu Asn Cys Val Glu Ile Phe Thr Asn Gly Gln Trp Asn Asp Lys Ala Cys Gly Glu Gln Arg 360 Leu Val Ile Cys Glu Phe 370 <210> 69 <211> 35 <212> PRT <213> Canis familiaris <400> 69 Leu Gly Ile Pro Cys Phe Pro Ser Ser Leu Lys Arg Leu Leu Ile Ile 5 10 Val Val Val Ile Val Leu Val Val Val Ile Val Gly Ala Leu Leu 20 Met Gly Leu 35 <210> 70

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Gln Cys Lys Ala Leu Gly His Cys Leu Gln Glu Val Trp Gly His Val

| Gly 65 | Ala | Asp | Asp | Leu | Cys 70 | Gln | Glu | Cys | Gln | Asp 75 | Ile | Val | Asn | ılle | Leu 80 |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Thr | Lys | Met | Thr | Lys 85 | Glu | Ala | Ile | Phe | Gln 90 | Asp | Thr | Ile | Arg | Lys 95 | Phe |
| Leu | Glu | His | Glu 100 | Cys | Asp | Val | Leu | Pro 105 | | Lys | Leu | Leu | Val | | Gln |
| Cys | His | His 115 | Val | Leu | Asp | Val | Tyr 120 | Phe | Pro | Leu | Thr | Ile 125 | | Tyr | Phe |
| Leu | Ser 130 | Gln | Ile | Asn | Ala | Lys 135 | Ala | Ile | Cys | Gln | His 140 | Leu | Gly | Leu | Cys |
| Gln 145 | Pro | Gly | Ser | Pro | Glu 150 | Pro | Pro | Leu | Asp | Pro 155 | Leu | Pro | Asp | Lys | Leu 160 |
| Val | Leu | Pro | Thr | Leu 165 | Leu | Gly | Ala | Leu | Pro 170 | Ala | Lys | Pro | Gly | Pro 175 | |
| Thr | Gln | Asp | Leu 180 | Ser | Ala | Gln | Arg | Phe 185 | Pro | Ile | Pro | Leu | Pro 190 | Leu | Cys |
| Trp | Leu | Cys 195 | Arg | Thr | Leu | Leu | Lys 200 | Arg | Ile | Gln | Ala | Met 205 | Ile | Pro | Lys |
| Gly | Val 210 | Leu | Ala | Met | Ala | Val 215 | Ala | Gln | Val | Cys | His 220 | Val | Val | Pro | Leu |
| Val 225 | Val | Gly | Gly | | Cys 230 | | | | | Glu 235 | - | Tyr | Thr | Val | Ile 240 |
| Leu | Leu | Glu | Val | Leu 245 | Leu | Gly | His | Val | Leu 250 | Pro | Gln | Leu | Val | Cys 255 | Gly |
| Leu | Val | Leu | Arg 260 | Cys | Ser | Ser | Val | Asp 265 | Ser | Ile | Gly | Gln | Val 270 | Pro | Pro |
| Thr | Leu | Glu 275 | Ala | Leu | Pro | _ | Glu 280 | Trp | Leu | Pro | Gln | Asp 285 | Pro | Glu | Cys |
| Pro | Leu | Cys | Met | Ser | Val | Thr | Thr | Gln | Ala | Arg | Asn | Ile | Ser | Glu | Gln |

290 295 300

Thr Arg Pro Gln Ala Val Tyr His Ala Cys Leu Ser Ser Gln Leu Asp 305 310 315 320

Lys Gln Glu Cys Glu Gln Phe Val Glu Leu His Thr Pro Gln Leu Leu 325 330 335

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Gly Ala Cys Val Ala Thr Leu Ser Pro Leu Gln Cys Ile Gln Ser Pro 355 360 365.

His Phe 370

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Val Lys Gly Asp Pro Gly Pro Pro Gly Pro Met Gly Pro Pro Gly Gly 50 55 60

Met Pro Gly Leu Pro Gly Arg Asp Gly Leu Ile Gly Ala Pro Gly Val 65 70 75 80

Pro Gly Glu Arg Gly Asp Lys Gly Glu Pro Gly Glu Arg Gly Pro Pro 85 90 95

Gly Leu Pro Ala Tyr Leu Asp Glu Glu Leu Gln Ala Thr Leu His Glu 100 105 110

| Leu | Arg | His 115 | | Ala | Leu | Gln | Ser 120 | Ile | Gly | Val | Leu | Ser 125 | | Gln | Gly |
|------------------------------|--------------|---------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
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| Val 145 | Asn | Phe | Asp | Ala | Ile 150 | Arg | Glu | Val | Cys | Ala 155 | _ | Ala | Gly | Gly | Arg 160 |
| Ile | Ala | Ile | Val | Lys 165 | Glu | Val | Pro | Arg | Ser 170 | Leu | Glu | Glu | Asn | Glu 175 | Ala |
| Ile | Ala | Ser | Arg 180 | Asn | Thr | Tyr | Ala | Tyr 185 | Leu | Gly | Leu | Ala | Glu 190 | Gly | Pro |
| Thr | Ala | Gly 195 | Asp | Phe | Tyr | Tyr | Leu 200 | Asp | Gly | Asp | Pro | Val 205 | Asn | Tyr | Thr |
| Asn | Trp 210 | Tyr | Pro | Gly | Glu | Pro 215 | Arg | Gly | Gln | Gly | Arg 220 | Glu | Lys | Cys | Val |
| Glu 225 | Met | Tyr | Thr | Asp | Gly 230 | Lys | Trp | Asn | Asp | Lys 235 | Asn | Cys | Leu | Gln | Tyr 240 |
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| Arg | Ser | Leu | Gly 20 | Ala | Glu | Met | Lys | Ile 25 | Tyr | Ser | Gln | Lys | Thr 30 | Met | Ala |
| Asn | Ala | Cys 35 | Thr | Leu | Val | Met | Cys 40 | Ser | Pro | Pro | Glu | Asp 45 | Gly | Leu | Pro |
| Gly | Arg 50 | Asp | Gly | Arg | Asp | Gly 55 | Arg | Glu | Gly | Pro | Arg 60 | Gly | Glu | Lys | Gly |

| Asp 65 | Pro | Gly | Ser | Pro | Gly 70 | Pro | Ala | Gly | Arg | Ala 75 | Gly | Met | Pro | Gly | Pro 80 |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Ala | Gly | Pro | Ile | Gly 85 | Leu | Lys | Gly | Asp | Asn 90 | Gly | Ser | Ala | Gly | Glu 95 | Pro |
| Gly | Pro | Lys | Gly 100 | Asp | Thr | Gly | Pro | Pro 105 | | Pro | Pro | Gly | Met 110 | Pro | Gly |
| Pro | Ala | Gly 115 | Arg | Glu | Gly | Pro | Ser 120 | Gly | Lys | Gln | Gly | Ser 125 | Met | Gly | Pro |
| Pro | Gly 130 | Thr | Pro | Gly | Pro | Lys 135 | Gly | Asp | Thr | Gly | Pro 140 | Lys | Gly | Gly | Val |
| Gly 145 | Ala | Pro | Gly | Ile | Gln 150 | Gly | Ser | Pro | Gly | Pro 155 | Ala | Gly | Leu | Lys | Gly 160 |
| Glu | Arg | Gly | Ala | Pro 165 | Gly | Glu | Pro | Gly | Ala 170 | Pro | Gly | Arg | Ala | Gly 175 | Ala |
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| Gly | Pro | Pro 195 | Gly | Leu | Lys | Gly | Asp 200 | Arg | Gly | Thr | Pro | Gly 205 | Glu | Arg | Gly |
| Ala | Lys 210 | Gly | Glu | Ser | Gly | Leu 215 | Ala | Glu | Val | Asn | Ala 220 | Leu | Arg | Gln | Arg |
| Val 225 | Gly | Ile | Leu | Glu | Gly 230 | Gln | Leu | Gln | Arg | Leu 235 | Gln | Asn | Ala | Phe | Ser 240 |
| Gln | Tyr | Lys | Lys | Ala 245 | Met | Leu | Phe | Pro | Asn 250 | Gly | Arg | Ser | Val | Gly 255 | Glu |
| Lys | Ile | Phe | Lys 260 | Thr | Val | Gly | Ser | Glu 265 | Lys | Thr | Phe | Gln | Asp 270 | Ala | Gln |
| Gln | Ile | Cys 275 | Thr | Gln | Ala | Gly | Gly 280 | Gln | Leu | Pro | Ser | Pro 285 | Arg | Ser | Gly |
| Ala | Glu | Asn | Glu | Ala | Leu | Thr | Gln | Leu | Ala | Thr | Ala | Gln | Asn | Lys | Ala |

290 295 300

Ala Phe Leu Ser Met Ser Asp Thr Arg Lys Glu Gly Thr Phe Ile Tyr 305 310 315 320

Pro Thr Gly Glu Pro Leu Val Tyr Ser Asn Trp Ala Pro Gln Glu Pro 325 330 335

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Lys Trp Asn Asp Lys Val Cys Gly Glu Gln Arg Leu Val Ile Cys Glu 355 360 365

Phe

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Arg Asp Gly Lys Glu Gly Pro Gln Gly Glu Lys Gly Asp Pro Gly Pro 35 40 45

Pro Gly Met Pro Gly Pro Ala Gly Arg Glu Gly Pro Ser Gly Arg Gln 50 55 60

Gly Ser Met Gly Pro Pro Gly Thr Pro Gly Pro Lys Gly Glu Pro Gly 65 70 75 80

Pro Glu Gly Gly Val Gly Ala Pro Gly Met Pro Gly Ser Pro Gly Pro 85 90 95

| Ala | Gly | Leu | Lys 100 | Gly | Glu | Arg | Gly | Ala 105 | Pro | Gly | Pro | Gly | Gly 110 | Ala | Ile |
|--------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Gly | Pro | Gln 115 | Gly | Pro | Ser | Gly | Ala 120 | Met | Gly | Pro | Pro | Gly 125 | Leu | Lys | Gly |
| Asp | Arg 130 | Gly | Asp | Pro | Gly | Glu 135 | Lys | Gly | Ala | Arg | Gly 140 | Glu | Thr | Ser | Val |
| Leu 145 | Glu | Val | Asp | Thr | Leu 150 | Arg | Gln | Arg | Met | Arg 155 | Asn | Leu | Glu | Gly | Glu 160 |
| Val | Gln | Arg | Leu | Gln 165 | Asn | Ile | Val | Thr | Gln 170 | Tyr | Arg | Lys | Ala | Val 175 | Leu |
| Phe | Pro | Asp | Gly 180 | Gln | Ala | Val | Gly | Glu 185 | Lys | Ile | Phe | Lys | Thr 190 | Ala | Gly |
| Ala | Val | Lys 195 | Ser | Tyr | Ser | Asp | Ala 200 | Glu | Gln | Leu | Cys | Arg 205 | Glu | Ala | Lys |
| Gly | Gln 210 | Leu | Ala | Ser | Pro | Arg 215 | Ser | Ser | Ala | Glu | Asn 220 | Glu | Ala | Val | Thr |
| Gln 225 | Leu | Val | Arg | Ala | Lys 230 | Asn | Lys | His | Ala | Tyr 235 | Leu | Ser | Met | Asn | Asp 240 |
| Ile | Ser | Lys | Glu | Gly 245 | Lys | Phe | Thr | Tyr | Pro 250 | Thr | Gly | Gly | Ser | Leu 255 | Asp |
| Tyr | Ser | Asn | Trp 260 | Ala | Pro | Gly | Glu | Pro 265 | Gly | Asn | Arg | Ala | Lys 270 | Asp | Glu |
| Gly | Pro | Glu 275 | Asn | Cys | Leu | Glu | Ile 280 | Tyr | Ser | Asp | Gly | Asn 285 | Trp | Asn | Asp |
| Ile | Glu 290 | Cys | Arg | Glu | Glu | Arg 295 | Leu | Val | Ile | Cys | Glu 300 | Phe | | | |
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Ser Ala Cys Thr Leu Val Met Cys Ser Ser Val Glu Ser Gly Leu Pro 35 40 45

Gly Arg Asp Gly Arg Gly Arg Glu Gly Pro Arg Gly Glu Lys Gly
50 55 60

Asp Pro Gly Leu Pro Gly Ala Ala Gly Gln Ala Gly Met Pro Gly Gln 65 70 75 80

Ala Gly Pro Val Gly Pro Lys Gly Asp Asn Gly Ser Val Gly Glu Pro 85 90 95

Gly Pro Lys Gly Asp Thr Gly Pro Ser Gly Pro Pro Gly Pro Pro Gly 100 105 110

Val Pro Gly Pro Ala Gly Arg Glu Gly Pro Leu Gly Lys Gln Gly Asn 115 120 125

Ile Gly Pro Gln Gly Lys Pro Gly Pro Lys Gly Glu Ala Gly Pro Lys 130 135 140

Gly Glu Val Gly Ala Pro Gly Met Gln Gly Ser Ala Gly Ala Arg Gly 145 150 155 160

Leu Ala Gly Pro Lys Gly Glu Arg Gly Val Pro Gly Glu Arg Gly Val 165 170 175

Pro Gly Asn Ala Gly Ala Ala Gly Ser Ala Gly Ala Met Gly Pro Gln 180 185 190

Gly Ser Pro Gly Ala Arg Gly Pro Pro Gly Leu Lys Gly Asp Lys Gly 195 200 205

Ile Pro Gly Asp Lys Gly Ala Lys Gly Glu Ser Gly Leu Pro Asp Val 210 215 220

| Leu | Gln | Ala | Ala | Phe 245 | Ser | Gln | Tyr | Lys | Lys 250 | Val | Glu | Leu | Phe | Pro 255 | Asn |
|------------------------------|--------------|---------------------------|------------|------------|------------|------------|------------|------------|------------|-------------|------------|------------|------------|------------|------------|
| Gly | Gln | Ser | Val 260 | Gly | Glu | Lys | Ile | Phe 265 | Lys | Thr | Ala | Gly | Phe 270 | Val | Lys |
| Pro | Phe | Thr 275 | Glu | Ala | Gln | Leu | Leu 280 | Cys | Thr | Gln | Ala | Gly 285 | Gly | Gln | Leu |
| Ala | Ser 290 | Pro | Arg | Ser | Ala | Ala 295 | Glu | Asn | Ala | Ala | Leu 300 | Gln | Gln | Leu | Val |
| Val 305 | Ala | Lys | Asn | Glu | Ala 310 | Ala | Phe | Leu | Ser | Met, 315 | Thr | Asp | Ser | Lys | Thr 320 |
| Glu | Gly | Lys | Phe | Thr 325 | Tyr | Pro | Thr | Gly | Glu 330 | Ser | Leu | Val | Tyr | Ser 335 | Asn |
| Trp | Ala | Pro | Gly 340 | Glu | Pro | Asn | Asp | Asp 345 | Gly | Gly | Ser | Glu | Asp 350 | Cys | Val |
| Glu | Ile | Phe 355 | Thr | Asn | Gly | Lys | Trp 360 | Asn | Asp | Arg | Ala | Cys 365 | Gly | Glu | Lys |
| Arg | Leu 370 | Val | Val | Cys | Glu | Phe 375 | | | | | | | | | |
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| Met 1 | Asp | Met | Gly | Ser 5 | Lys ' | Glu | Val | Leu | Met 10 | Glu | Ser | Pro | Pro | Asp 15 | Tyr |
| Ser | Thr | Gly | Pro 20 | Arg | Ser | Gln | Phe | Arg 25 | Ile | Pro | Cys | Cys | Pro 30 | Val | His |
| Leu | Lys | Arg 35 | Leu | Leu | Ile | Val | Val 40 | Val | Val | Val | Val | Leu 45 | Val | Val | Val |

Ala Ser Leu Arg Gln Gln Val Glu Ala Leu Gln Gly Gln Val Gln His

Val Ile Val Gly Ala Leu Leu Met Gly Leu His Met Ser Gln Lys His Thr Glu Met Val Leu Glu Met Ser Ile Gly Gly Ala Pro Glu Thr Gln 70 Lys Arg Leu Ala Leu Ser Glu His Thr Asp Thr Ile Ala Thr Phe Ser 90 Ile Gly Ser Thr Gly Ile Val Leu Tyr Asp Tyr Gln Arg Leu Leu Thr 100 Ala Tyr Lys Pro Ala Pro Gly Thr Tyr Cys Tyr Ile Met Lys Met Ala 120 115 Pro Glu Ser Ile Pro Ser Leu Glu Ala Leu Ala Arg Lys Phe Lys Asn 130 135 Phe Gln Ala Lys Ser Ser Thr Pro Thr Ser Lys Leu Gly Gln Glu Glu 155 150 Gly His Ser Ala Gly Ser Asp Ser Asp Ser Ser Gly Arg Asp Leu Ala 165 170 Phe Leu Gly Leu Ala Val Ser Thr Leu Cys Gly Val Leu Pro Leu Tyr 180 Tyr Ile <210> 78 <211> 247 <212> PRT <213> Oryctolagus cuniculus <400> 78 Met Leu Leu Ser Leu Ala Leu Thr Leu Ile Ser Ala Pro Ala Ser Asp Thr Cys Asp Thr Lys Asp Val Cys Ile Gly Ser Pro Gly Ile Pro Gly Thr Pro Gly Ser His Gly Leu Pro Gly Arg Asp Gly Arg Asp Gly

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Val Lys Gly Asp Pro Gly Pro Pro Ala Pro Trp Ala Pro Pro Gly Gly 50 55 60

Met Pro Gly Leu Pro Gly Arg Asp Gly Leu Ile Gly Ala Pro Gly Val 65 70 75 80

Pro Gly Glu Arg Gly Asp Lys Gly Glu Pro Gly Glu Arg Gly Pro Pro 85 90 95

Gly Leu Pro Ala Tyr Leu Asp Glu Glu Leu Gln Ala Thr Leu His Glu 100 105 110

Leu Arg His His Ala Leu Gln Ser Ile Gly Val Leu Ser Leu Gln Gly
115 120 125

Ser Met Lys Ala Val Gly Glu Lys Ile Phe Ser Thr Asn Gly Gln Ser 130 135 140

Val Asn Phe Asp Ala Ile Arg Glu Val Cys Ala Arg Ala Gly Gly Arg 145 150 155 160

Ile Ala Val Pro Arg Ser Leu Glu Glu Asn Glu Ala Ile Ala Ser Ile 165 170 175

Val Lys Glu Arg Asn Thr Tyr Ala Tyr Leu Gly Leu Ala Glu Gly Pro 180 185 190

Thr Ala Gly Asp Phe Tyr Tyr Leu Asp Gly Asp Pro Val Asn Tyr Thr 195 200 205

Asn Trp Tyr Pro Gly Glu Pro Arg Gly Gln Gly Arg Glu Lys Cys Val 210 215 220

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Leu Gly Gly Pro Gly Gln Val Thr Tyr Thr Thr Pro Phe Gln Thr Thr

Ser Ser Ser Leu Glu Ala Val Pro Phe Ala Ser Ala Ala Asn Val Ala

215

195

210

| Cys 225 | Gly | Glu | Gly | Asp | Lys 230 | Asp | Glu | Thr | Gln | Ser 235 | His | Tyr | Phe | Leu | Cys 240 |
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| Lys | Glu | Lys | Ala | Pro 245 | Asp | Val | Phe | Asp | Trp 250 | Gly | Ser | Ser | Gly | Pro 255 | Leu |
| Cys | Val | Ser | Pro 260 | Lys | Tyr | Gly | Cys | Asn 265 | Phe | Asn | Asn | Gly | Gly 270 | Cys | His |
| Gln | Asp | Cys 275 | Phe | Glu | Gly | Gly | Asp 280 | Gly | Ser | Phe | Leu | Cys 285 | Gly | Cys | Arg |
| Pro | Gly 290 | Phe | Arg | Leu | Leu | Asp 295 | Asp | Leu | Val | Thr | Cys 300 | Ala | Ser | Arg | Asn |
| Pro 305 | Cys | Ser | Ser | Ser | Pro 310 | Cys | Arg | Gly | Gly | Ala 315 | Thr | Cys | Val | Leu | Gly 320 |
| Pro | His | Gly | Lys | Asn 325 | Tyr | Thr | Cys | Arg | Cys 330 | Pro | Gln | Gly | Tyr | Gln 335 | Leu |
| Asp | Ser | Ser | Gln 340 | Leu | Asp | Cys | Val | Asp 345 | Val | Asp | Glu | Cys | Gln 350 | Asp | Ser |
| Pro | Cys | Ala 355 | Gln | Glu | Cys | Val | Asn 360 | Thr | Pro | Gly | Gly | Phe 365 | Arg | Cys | Glu |
| Cys | Trp 370 | Val | Gly | Tyr | Glu | Pro 375 | Gly | Gly | Pro | Gly | Glu 380 | Gly | Ala | Cys | Gln |
| Asp 385 | | Asp | Glu | Cys | Ala 390 | | Gly | Arg | Ser | Pro 395 | | Ala | Gln | Gly | Cys 400 |
| Thr | Asn | Thr | Asp | Gly 405 | Ser | Phe | His | Cys | Ser 410 | Cys | Glu | Glu | Gly | Tyr 415 | Val |
| Leu | Ala | Gly | Glu 420 | Asp | Gly | Thr | Gln | Cys 425 | Gln | Asp | Val | Asp | Glu 430 | Cys | Val |
| Gly | Pro | Gly 435 | Gly | Pro | Leu | Cys | Asp | Ser | Leu | Cys | Phe | Asn 445 | Thr | Gln | Gly |

Ser Phe His Cys Gly Cys Leu Pro Gly Trp Val Leu Ala Pro Asn Gly 455 Val Ser Cys Thr Met Gly Pro Val Ser Leu Gly Pro Pro Ser Gly Pro 470 Pro Asp Glu Glu Asp Lys Gly Glu Lys Glu Gly Ser Thr Val Pro Arg 490 Ala Ala Thr Ala Ser Pro Thr Arg Gly Pro Glu Gly Thr Pro Lys Ala 505 Thr Pro Thr Thr Ser Arg Pro Ser Leu Ser Ser Asp Ala Pro Ile Thr 520 Ser Ala Pro Leu Lys Met Leu Ala Pro Ser Gly Ser Pro Gly Val Trp Arg Glu Pro Ser Ile His His Ala Thr Ala Ala Ser Gly Pro Gln Glu 550 555 Pro Ala Gly Gly Asp Ser Ser Val Ala Thr Gln Asn Asn Asp Gly Thr 565 570 Asp Gly Gln Lys Leu Leu Phe Tyr Ile Leu Gly Thr Val Val Ala 580 585 Ile Leu Leu Leu Leu Ala Leu Ala Leu Gly Leu Leu Val Tyr Arg Lys 595 600 605 Arg Arg Ala Lys Arg Glu Glu Lys Lys Glu Lys Lys Pro Gln Asn Ala 610 615 Ala Asp Ser Tyr Ser Trp Val Pro Glu Arg Ala Glu Ser Arg Ala Met 625 Glu Asn Gln Tyr Ser Pro Thr Pro Gly Thr Asp Cys 645 <210> 80 <211> 644 <212> PRT <213> Mus musculus

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| Pr | o Trp | Ala | Gly 20 | Ala | Ala | Ala | Asp | Ser 25 | Gln | Ala | Val | Val | Cys 30 | Glu | Gly |
| Th | r Ala | Cys 35 | Tyr | Thr | Ala | His | Trp 40 | Gly | Lys | Leu | Ser | Ala 45 | Ala | Glu | Ala |
| Gl | n His 50 | Arg | Cys | Asn | Glu | Asn 55 | Gly | Gly | Asn | Leu | Ala 60 | Thr | Val | Lys | Ser |
| Gl 65 | u Glu | Glu | Ala | Arg | His 70 | Val | Gln | Gln | Ala | Leu 75 | Thr | Gln | Leu | Leu | Lys 80 |
| Th | r Lys | Ala | Pro | Leu 85 | Glu | Ala | Lys | Met | Gly 90 | Lys | Phe | Trp | Ile | Gly 95 | Leu |
| Gl | n Arg | Glu | Lys 100 | Gly | Asn | Cya | Thr | Tyr 105 | His | Asp | Leu | Pro | Met 110 | Arg | Gly |
| | e Ser | 115 | | | _ | | 120 | | | | | 125 | | | |
| | s Ala 130 | | | | | 135 | | | | | 140 | | | | |
| 14 | | | | | 150 | | | | | 155 | | | | | 160 |
| | u Ser | | | 165 | | | | | 170 | | | | | 175 | |
| | e Leu | | 180 | | | | | 185 | | | | | 190 | | |
| | y Gly | 195 | | | | | 200 | | | | | 205 | | | |
| | r Ser 210 | | | | | 215 | | | | | 220 | | | | |
| Gl | y Asp | Glu | Ala | Lys | Ser | Glu | Thr | His | Tyr | Phe | Leu | Cys | Asn | Glu | Lys |

Pro Lys Phe Gly Cys Ser Phe Asn Asn Gly Gly Cys Gln Gln Asp Cys 260 265 270

Phe Glu Gly Gly Asp Gly Ser Phe Arg Cys Gly Cys Arg Pro Gly Phe 275 280 285

Arg Leu Leu Asp Asp Leu Val Thr Cys Ala Ser Arg Asn Pro Cys Ser 290 295 300

Ser Asn Pro Cys Thr Gly Gly Gly Met Cys His Ser Val Pro Leu Ser 305 310 315 320

Glu Asn Tyr Thr Cys Arg Cys Pro Ser Gly Tyr Gln Leu Asp Ser Ser 325 330 335

Gln Val His Cys Val Asp Ile Asp Glu Cys Gln Asp Ser Pro Cys Ala 340 345 350

Gln Asp Cys Val Asn Thr Leu Gly Ser Phe His Cys Glu Cys Trp Val 355 360 365

Gly Tyr Gln Pro Ser Gly Pro Lys Glu Glu Ala Cys Glu Asp Val Asp 370 375 380

Glu Cys Ala Ala Ala Asn Ser Pro Cys Ala Gln Gly Cys Ile Asn Thr 385 390 395 400

Asp Gly Ser Phe Tyr Cys Ser Cys Lys Glu Gly Tyr Ile Val Ser Gly 405 410 415

Glu Asp Ser Thr Gln Cys Glu Asp Ile Asp Glu Cys Ser Asp Ala Arg 420 425 430

Gly Asn Pro Cys Asp Ser Leu Cys Phe Asn Thr Asp Gly Ser Phe Arg 435 440 445

Cys Gly Cys Pro Pro Gly Trp Glu Leu Ala Pro Asn Gly Val Phe Cys 450 455 460

Glu Asp Asn Asp Arg Lys Glu Ser Thr Met Pro Pro Thr Glu Met 485 490 Pro Ser Ser Pro Ser Gly Ser Lys Asp Val Ser Asn Arg Ala Gln Thr 500 505 Thr Gly Leu Phe Val Gln Ser Asp Ile Pro Thr Ala Ser Val Pro Leu 520 Glu Ile Glu Ile Pro Ser Glu Val Ser Asp Val Trp Phe Glu Leu Gly 535 Thr Tyr Leu Pro Thr Thr Ser Gly His Ser Lys Pro Thr His Glu Asp 550 Ser Val Ser Ala His Ser Asp Thr Asp Gly Gln Asn Leu Leu Phe 565 570 Tyr Ile Leu Gly Thr Val Val Ala Ile Ser Leu Leu Val Leu Ala 580 585 Leu Gly Ile Leu Ile Tyr His Lys Arg Arg Ala Lys Lys Glu Glu Ile 595 600 Lys Glu Lys Lys Pro Gln Asn Ala Ala Asp Ser Tyr Ser Trp Val Pro Glu Arg Ala Glu Ser Gln Ala Pro Glu Asn Gln Tyr Ser Pro Thr Pro 630 635 Gly Thr Asp Cys <210> 81 <211> 688 <212> PRT <213> Homo sapiens <400> 81 Met Trp Cys Ile Val Leu Phe Ser Leu Leu Ala Trp Val Tyr Ala Glu 5 10

Ser Arg Gly Thr Val Phe Ser Glu Leu Pro Ala Arg Pro Pro Gln Lys

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|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Pro | Ser | Glu 35 | Val | Glu | Lys | Ser | Trp 40 | Asp | Ile | Glu | Val | Pro 45 | Glu | Gly | Tyr |
| Gly | Ile 50 | His | Leu | Tyr | Phe | Thr 55 | His | Leu | Asp | Ile | Glu 60 | Leu | Ser | Glu | Asn |
| Cys | Ala | Tyr | Asp | Ser | Val 70 | Gln | Ile | Ile | Ser | Gly 75 | Asp | Thr | Glu | Glu | Gly 80 |
| Arg | Leu | Cys | Gly | Gln 85 | Arg | Ser | Ser | Asn | Asn 90 | Pro | His | Ser | Pro | Ile 95 | Val |
| Glu | Glu | Phe | Gln 100 | Val | Pro | Tyr | Asn | Lys 105 | Leu | Gln | Val | Ile | Phe 110 | Lys | Ser |
| Asp | Phe | Ser 115 | Asn | Glu | Glu | Arg | Phe 120 | Thr | Gly | Phe | Ala | Ala 125 | Tyr | Tyr | Val |
| Ala | Thr 130 | Asp | Ile | Asn | Glu | Cys 135 | Thr | Asp | Phe | Val | Asp 140 | Val | Pro | Cys | Ser |
| His 145 | Phe | Cys | Asn | Asn | Phe 150 | Ile | Gly | Gly | Tyr | Phe 155 | Cys | Ser | Cys | Pro | Pro 160 |
| Glu | Tyr | Phe | Leu | His 165 | Asp | Asp | Met | Lys | Asn 170 | Cys | Gly | Val | Asn | Cys 175 | Ser |
| Gly | Asp | Val | Phe 180 | Thr | Ala | Leu | Ile | Gly 185 | Glu | Ile | Ala | Ser | Pro 190 | Asn | Tyr |
| Pro | Lys | Pro 195 | Tyr | Pro | Glu | Asn | Ser 200 | Arg | Cys | Glu | Tyr | Gln 205 | Ile | Arg | Leu |
| Glu | Lys 210 | Gly | Phe | Gln | Val | Val 215 | Val | Thr | Leu | Arg | Arg 220 | Glu | Asp | Phe | Asp |
| Val 225 | Glu | Ala | Ala | Asp | Ser 230 | Ala | Gly | Asn | Cys | Leu 235 | Asp | Ser | Leu | Val | Phe 240 |

| Val | . Ala | Gly | / Asp | 245 | | Phe | e Gly | Pro | 250 | | Gly | His | Gly | Phe 255 | Pro |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Gly | Pro | Leu | Asn 260 | | Glu | Thr | Lys | Ser 265 | | Ala | Leu | Asp | Ile 270 | | Phe |
| Gln | Thr | Asp 275 | | Thr | Gly | Gln | Lys 280 | | Gly | Trp | Lys | Leu 285 | | Tyr | His |
| Gly | Asp 290 | | Met | Pro | Cys | Pro 295 | | Glu | Asp | Thr | Pro 300 | Asn | Ser | Val | Trp |
| Glu 305 | Pro | Ala | Lys | Ala | Lys 310 | Tyr | Val | Phe | Arg | Asp 315 | Val | Val | Gln | Ile | Thr 320 |
| Cys | Leu | Asp | Gly | Phe 325 | Glu | Val | Val | Glu | Gly 330 | | Val | Gly | Ala | Thr 335 | Ser |
| Phe | Tyr | Ser | Thr 340 | Cys | Gln | Ser | Asn | Gly 345 | Lys | Trp | Ser | Asn | Ser 350 | Lys | Leu |
| Lys | Cys | Gln 355 | Pro | Val | Asp | Cys | Gly 360 | Ile | Pro | Glu | Ser | Ile 365 | Glu | Asn | Gly |
| Lys | Val 370 | Glu | Asp | Pro | Glu | Ser 375 | Thr | Leu | Phe | Gly | Ser 380 | Val | Ile | Arg | Tyr |
| Thr 385 | Cys | Glu | Glu | Pro | Tyr 390 | Tyr | Tyr | Met | Glu | Asn 395 | Gly | Gly | Gly | Gly | Glu 400 |
| Tyr | His | Cys | Ala | Gly 405 | Asn | Gly | Ser | Trp | Val 410 | Asn | Glu | Val | Leu | Gly 415 | Pro |
| Glu | Leu | Pro | Lys 420 | Cys | Val | Pro | Val | Cys 425 | Gly | Val | Pro | Arg | Glu 430 | Pro | Phe |
| Glu | Glu | Lys 435 | Gln | Arg | Ile | Ile | Gly 440 | Gly | Ser | Asp | Ala | Asp 445 | Ile | Lys | Asn |
| Phe | Pro 450 | Trp | Gln | Val | Phe | Phe 455 | Asp | Asn | Pro | | Ala 460 | Gly | Gly | Ala | Leu |
| Ile 465 | Asn | Glu | Tyr | Trp | Val 470 | Leu | Thr | Ala | | His 475 | Val | Val | Glu | _ | Asn 480 |

| Arg Glu Pro Thr Met Tyr Val Gly Ser Thr S | Ser Val Gln Thr Ser Arg |
|--|----------------------------------|
| 485 490 | 495 |
| Leu Ala Lys Ser Lys Met Leu Thr Pro Glu H | His Val Phe Ile His Pro |
| 500 505 | 510 |
| Gly Trp Lys Leu Leu Glu Val Pro Glu Gly A | Arg Thr Asn Phe Asp Asn |
| 515 520 | 525 |
| Asp Ile Ala Leu Val Arg Leu Lys Asp Pro V | al Lys Met Gly Pro Thr |
| 530 535 | 540 |
| Val Ser Pro Ile Cys Leu Pro Gly Thr Ser S | Ser Asp Tyr Asn Leu Met |
| 545 550 5 | 555 560 |
| Asp Gly Asp Leu Gly Leu Ile Ser Gly Trp G | Gly Arg Thr Glu Lys Arg |
| 565 570 | 575 |
| Asp Arg Ala Val Arg Leu Lys Ala Ala Arg L | eu Pro Val Ala Pro Leu |
| 580 585 | 590 |
| Arg Lys Cys Lys Glu Val Lys Val Glu Lys P | Pro Thr Ala Asp Ala Glu |
| 595 600 | 605 |
| Ala Tyr Val Phe Thr Pro Asn Met Ile Cys A | la Gly Gly Glu Lys Gly |
| 610 615 | 620 |
| Met Asp Ser Cys Lys Gly Asp Ser Gly Gly Asp 625 630 63 | la Phe Ala Val Gln Asp 35 640 |
| Pro Asn Asp Lys Thr Lys Phe Tyr Ala Ala G | ly Leu Val Ser Trp Gly |
| 645 650 | 655 |
| Pro Gln Cys Gly Thr Tyr Gly Leu Tyr Thr An | rg Val Lys Asn Tyr Val |
| 660 665 | 670 |
| Asp Trp Ile Met Lys Thr Met Gln Glu Asn Se | er Thr Pro Arg Glu Asp |
| 675 680 | 685 |
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Ala Gln Asn His Cys Asn Gln Asn Gly Gly Asn Leu Ala Thr Val Lys 50 55 60

Ser Lys Glu Glu Ala Gln His Val Gln Arg Val Leu Ala Gln Leu Leu 65 70 75 80

Arg Arg Glu Ala Ala Leu Thr Ala Arg Met Ser Lys Phe Trp Ile Gly 85 90 95

Leu Gln Arg Glu Lys Gly Lys Cys Leu Asp Pro Ser Leu Pro Leu Lys
100 105 110

Gly Phe Ser Trp Val Gly Gly Glu Asp Thr Pro Tyr Ser Asn Trp 115 120 125

His Lys Glu Leu Arg Asn Ser Cys Ile Ser Lys Arg Cys Val Ser Leu 130 135 140

Leu Leu Asp Leu Ser Gln Pro Leu Leu Pro Asn Arg Leu Pro Lys Trp 145 150 155 160

Ser Glu Gly Pro Cys Gly Ser Pro Gly Ser Pro Gly Ser Asn Ile Glu 165 170 175

Gly Phe Val Cys Lys Phe Ser Phe Lys Gly Met Cys Arg Pro Leu Ala 180 185 190

Leu Gly Gly Pro Gly Gln Val Thr Tyr Thr Thr Pro Phe Gln Thr Thr 195 200 205

Ser Ser Ser Leu Glu Ala Val Pro Phe Ala Ser Ala Ala Asn Val Ala 210 215 220

| Cys Gl; 225 | y Glu | Gly | Asp | Lys 230 | Asp | Glu | Thr | Gln | Ser 235 | His | Tyr | Phe | Leu | Cys 240 |
|----------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Lys Gl | ı Lys | Ala | Pro 245 | Asp | Val | Phe | Asp | Trp 250 | Gly | Ser | Ser | Gly | Pro 255 | Leu |
| Cys Va | l Ser | Pro 260 | Lys | Tyr | Gly | Cys | Asn 265 | Phe | Asn | Asn | Gly | Gly 270 | Cys | His |
| Gln As | 275 | Phe | Glu | Gly | Gly | Asp 280 | Gly | Ser | Phe | Leu | Cys 285 | Gly | Cys | Arg |
| Pro Gly 29 | | Arg | Leu | Leu | Asp 295 | Asp | Leu | Val | Thr | Cys 300 | Ala | Ser | Arg | Asn |
| Pro Cys | s Ser | Ser | Ser | Pro 310 | Сув | Arg | Gly | Gly | Ala 315 | Thr | Cys | Val | Leu | Gly 320 |
| Pro Hi | ₃ Gly | Lys | Asn 325 | Tyr | Thr | Cys | Arg | 330 | Pro | Gln | Gly | Tyr | Gln 335 | Leu |
| Asp Se | s Ser | Gln 340 | Leu | Asp | Cys | Val | Asp 345 | Val | Asp | Glu | Cys | Gln 350 | Asp | Ser |
| Pro Cy | 355 | Gln | Glu | Cys | Val | Asn 360 | Thr | Pro | Gly | Gly | Phe 365 | Arg | Cys | Glu |
| Cys Tr | | Gly | Tyr | Glu | Pro 375 | Gly | Gly | Pro | Gly | Glu 380 | Gly | Ala | Cys | Gln |
| Asp Va | l Asp | Glu | Cys | Ala 390 | Leu | Gly | Arg | Ser | Pro 395 | Cys | Ala | Gln | Gly | Cys 400 |
| Thr Asi | ı Thr | Asp | Gly 405 | Ser | Phe | His | Cys | Ser 410 | Cys | Glu | Glu | Gly | Tyr 415 | Val |
| Leu Ala | a Gly | Glu 420 | Asp | Gly | Thr | Gln | Cys 425 | Gln | Asp | Val | Asp | Glu 430 | Cys | Val |
| Gly Pro | Gly 435 | Gly | Pro | Leu | | Asp 440 | Ser | Leu | Cys | Phe | Asn 445 | Thr | Gln | Gly |
| Ser Ph | e His | Cys | Gly | Cys | Leu | Pro | Gly | Trp | Val | Leu | Ala | Pro | Asn | Gly |

| 450 | 455 | 460 |
|-----|-----|-----|
|-----|-----|-----|

Val Ser Cys Thr Met Gly Pro Val Ser Leu Gly Pro Pro Ser Gly Pro 465 470 475 480

Pro Asp Glu Glu Asp Lys Gly Glu Lys Glu Gly Ser Thr Val Pro Arg
485 490 495

Ala Ala Thr Ala Ser Pro Thr Arg Gly Pro Glu Gly Thr Pro Lys Ala 500 505 510

Thr Pro Thr Thr Ser Arg Pro Ser Leu Ser Ser Asp Ala Pro Ile Thr 515 520 525

Ser Ala Pro Leu Lys Met Leu Ala Pro Ser Gly Ser Ser Gly Val Trp 530 540

Arg Glu Pro Ser Ile His His Ala Thr Ala Ala Ser Gly Pro Gln Glu 545 550 555 560

Pro Ala Gly Gly Asp Ser Ser Val Ala Thr Gln Asn Asn Asp Gly Thr 565 570 575

Asp Gly Gln Lys Leu Leu Phe Tyr Ile Leu Gly Thr Val Val Ala 580 585 590

Ile Leu Leu Leu Leu Ala Leu Ala Leu Gly Leu Leu Val Tyr Arg Lys 595 600 605

Arg Arg Ala Lys Arg Glu Glu Lys Lys Glu Lys Lys Pro Gln Asn Ala 610 615 620

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Glu Asn Gln Tyr Ser Pro Thr Pro Gly Thr Asp Cys 645 650

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<212> PRT

<213> Homo sapiens

<400> 83

| Met 1 | Ser | Leu | Phe | Pro 5 | Ser | Leu | Pro | Leu | Leu 10 | . Lev | Leu | Ser | . Met | : Val | Ala |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Ala | Ser | Tyr | Ser 20 | Glu | Thr | Val | Thr | Cys 25 | Glu | Asp |) Ala | Glr | Lys 30 | Thr | Cys |
| Pro | Ala | Val 35 | Ile | Ala | Cys | Ser | Ser 40 | Pro | Gly | ·Ile | : Asn | Gly 45 | Phe | Pro | Gly |
| Lys | Asp 50 | Gly | Arg | Asp | Gly | Thr 55 | Lys | Gly | Glu | Lys | Gly 60 | Glu | Pro | Gly | Gln |
| Gly 65 | Leu | Arg | Gly | Leu | Gln 70 | Gly | Pro | Pro | Gly | Lys 75 | Leu | Gly | Pro | Pro | Gly 80 |
| Asn | Pro | Gly | Pro | Ser 85 | Gly | Ser | Pro | Gly | Pro 90 | Lys | Gly | Gln | Lys | Gly 95 | Asp |
| Pro | Gly | Lys | Ser 100 | Pro | Asp | Gly | Asp | Ser 105 | Ser | Leu | Ala | Ala | Ser 110 | Glu | Arg |
| Lys | Ala | Leu 115 | Gln | Thr | Glu | Met | Ala 120 | Arg | Ile | Lys | Lys | Trp 125 | Leu | Thr | Phe |
| Ser | Leu 130 | Gly | Lys | Gln | Val | Gly 135 | Asn | Lys | Phe | Phe | Leu 140 | Thr | Asn | Gly | Glu |
| Ile 145 | Met | Thr | Phe | Glu | Lys 150 | Val | Lys | Ala | Leu | Cys 155 | Val | Lys | Phe | Gln | Ala 160 |
| Ser | Val | Ala | Thr | Pro 165 | Arg | Asn | Ala | Ala | Glu 170 | Asn | Gly | Ala | Ile | Gln 175 | Asn |
| Leu | Ile | Lys | Glu 180 | Glu | Ala | Phe | Leu | Gly 185 | Ile | Thr | Asp | Glu | Lys 190 | Thr | Glu |
| Gly | Gln | Phe 195 | Val | Asp | Leu | Thr | Gly 200 | Asn | Arg | Leu | Thr | Туг 205 | Thr | Asn | Trp |
| Asn | Glu 210 | Gly | Glu | Pro | Asn | Asn 215 | Ala | Gly | Ser | Asp | Glu 220 | Asp | Cys | Val | Leu |
| Leu 225 | Leu | Lys | Asn | - | Gln 230 | Trp | Asn | Asp | | Pro | Cys | Ser | Thr | Ser | His |

Leu Ala Val Cys Glu Phe Pro Ile 245

<210> 84

<211> 159 <212> PRT <213> Zephyranthes candida

<400> 84

Met Thr Arg Ile Thr Phe Leu Val Val Ala Ala Ile Phe Leu Gly Val 1 . 5

Ile Thr Pro Ser Cys Leu Ser Val Cys Asp Ser Ile Leu Tyr Ser Gly 20 25

Glu Thr Leu Ser Ala Gly Gln Ser Leu Asn Asn Gly Pro Tyr Thr Phe 40

Ile Met Gln Glu Asp Cys Asn Leu Val Leu Tyr Asn Val Asp Lys Pro 55 50

Ile Trp Ala Ser Asn Thr Gly Gly Leu Ala Arg Gly Cys His Leu Ser 70

Met Gln Arg Asp Gly Asn Leu Val Val Tyr Ser Gln Arg Asn Arg Pro 85 90

Ile Trp Ala Ser Asn Thr Gly Gly His Asn Ala Ala Asn Tyr Val Leu

Ile Leu Gln Lys Asp Arg Asn Val Val Ile Tyr Gly Pro Ala Lys Trp 120

Ala Thr Gly Thr Tyr Thr Gly Ala Val Gly Ile Ser Gly Phe Glu Thr 135 130

Gly Thr Ala Gly Ile Ile Lys Pro Val Thr Val Lys Ser Ala Lys 150 155

<210> 85

<211> 239

<212> PRT

<213> Mus musculus

<400> 85

Met Leu Leu Pro Leu Leu Pro Val Leu Leu Cys Val Val Ser Val 1 5 10 15

Ser Ser Ser Gly Ser Gln Thr Cys Glu Asp Thr Leu Lys Thr Cys Ser 20 25 30

Val Ile Ala Cys Gly Arg Asp Gly Arg Asp Gly Pro Lys Gly Glu Lys
35 40 45

Gly Glu Pro Gly Gln Gly Leu Arg Gly Leu Gln Gly Pro Pro Gly Lys
50 55 60

Leu Gly Pro Pro Gly Ser Val Gly Ser Pro Gly Ser Pro Gly Pro Lys 65 70 75 80

Gly Gln Lys Gly Asp His Gly Asp Asn Arg Ala Ile Glu Glu Lys Leu 85 90 95

Ala Asn Met Glu Ala Glu Ile Arg Ile Leu Lys Ser Lys Leu Gln Leu 100 105 110

Thr Asn Lys Leu His Ala Phe Ser Met Gly Lys Lys Ser Gly Lys Lys 115 120 125

Leu Phe Val Thr Asn His Glu Lys Met Pro Phe Ser Lys Val Lys Ser 130 135 140

Leu Cys Thr Glu Leu Gln Gly Thr Val Ala Ile Pro Arg Asn Ala Glu 145 150 155 160

Glu Asn Lys Ala Ile Gln Glu Val Ala Thr Gly Ile Ala Phe Leu Gly
165 170 175

Ile Thr Asp Glu Ala Thr Glu Gly Gln Phe Met Tyr Val Thr Gly Gly
180 185 190

Arg Leu Thr Tyr Ser Asn Trp Lys Lys Asp Glu Pro Asn Asn His Gly
195 200 205

Ser Gly Glu Asp Cys Val Ile Ile Leu Asp Asn Gly Leu Trp Asn Asp 210 215 220

| Ile Ser Cys | Gln Ala Ser 230 | Phe Lys Ala | Val Cys Glu 235 | Phe Pro Ala |
|---|--------------------|--------------------|--------------------|------------------------|
| <210> 86 <211> 244 <212> PRT <213> Mus m | usculus | | | |
| <400> 86 | | | | |
| Met Ser Ile : | Phe Thr Ser 5 | Phe Leu Leu | Leu Cys Val 10 | Val Thr Val Val 15 |
| _ | Thr Leu Thr 20 | Glu Gly Val 25 | Gln Asn Ser | Cys Pro Val Val |
| Thr Cys Ser | Ser Pro Gly | Leu Asn Gly | Phe Pro Gly | Lys Asp Gly Arg 45 |
| Asp Gly Ala 1 | Lys Gly Glu | Lys Gly Glu 55 | Pro Gly Gln 60 | Gly Leu Arg Gly |
| Leu Gln Gly 1 | Pro Pro Gly 70 | Lys Val Gly | Pro Thr Gly 75 | Pro Pro Gly Asn 80 |
| Pro Gly Leu 1 | Lys Gly Ala 85 | Val Gly Pro | Lys Gly Asp 90 | Arg Gly Asp Arg 95 |
| | Asp Thr Ser 100 | Glu Ile Asp 105 | Ser Glu Ile | Ala Ala Leu Arg 110 |
| Ser Glu Leu i | Arg Ala Leu | Arg Asn Trp 120 | Val Leu Phe | Ser Leu Ser Glu 125 |
| Lys Val Gly 1 | Lys Lys Tyr | Phe Val Ser | Ser Val Lys 140 | Lys Met Ser Leu |
| Asp Arg Val 1 | Lys Ala Leu 150 | Cys Ser Glu | Phe Gln Gly 155 | Ser Val Ala Thr 160 |
| Pro Arg Asn A | Ala Glu Glu 165 | Asn Ser Ala | Ile Gln Lys 170 | Val Ala Lys Asp 175 |
| | Leu Gly Ile 180 | Thr Asp Val | Arg Val Glu | Gly Ser Phe Glu 190 |

Asp Leu Thr Gly Asn Arg Val Arg Tyr Thr Asn Trp Asn Asp Gly Glu 200 195 Pro Asn Asn Thr Gly Asp Gly Glu Asp Cys Val Val Ile Leu Gly Asn 220 215 210 Gly Lys Trp Asn Asp Val Pro Cys Ser Asp Ser Phe Leu Ala Ile Cys 240 235 230 Glu Phe Ser Asp <210> 87 <211> 248 <212> PRT Homo sapiens <213> <400> 87 Met Ser Leu Phe Pro Ser Leu Pro Leu Leu Leu Ser Met Val Ala 10 Ala Ser Tyr Ser Glu Thr Val Thr Cys Glu Asp Ala Gln Lys Thr Cys 25 Pro Ala Val Ile Ala Cys Ser Ser Pro Gly Ile Asn Gly Phe Pro Gly 40 Lys Asp Gly Arg Asp Gly Thr Lys Gly Glu Lys Gly Glu Pro Gly Gln 50 Gly Leu Arg Gly Leu Gln Gly Pro Pro Gly Lys Leu Gly Pro Pro Gly Asn Pro Gly Pro Ser Gly Ser Pro Gly Pro Lys Gly Gln Lys Gly Asp 85 Pro Gly Lys Ser Pro Asp Gly Asp Ser Ser Leu Ala Ala Ser Glu Arg 110 100 105 Lys Ala Leu Gln Thr Glu Met Ala Arg Ile Lys Lys Trp Leu Thr Phe 125 115 Ser Leu Gly Lys Gln Val Gly Asn Lys Phe Phe Leu Thr Asn Gly Glu 130 135

Ile Met Thr Phe Glu Lys Val Lys Ala Leu Cys Val Lys Phe Gln Ala 145 Ser Val Ala Thr Pro Arg Asn Ala Ala Glu Asn Gly Ala Ile Gln Asn 170 Leu Ile Lys Glu Glu Ala Phe Leu Gly Ile Thr Asp Glu Lys Thr Glu 185 Gly Gln Phe Val Asp Leu Thr Gly Asn Arg Leu Thr Tyr Thr Asn Trp 200 Asn Glu Gly Glu Pro Asn Asn Ala Gly Ser Asp Glu Asp Cys Val Leu 210 215 Leu Leu Lys Asn Gly Gln Trp Asn Asp Val Pro Cys Ser Thr Ser His 225 230 Leu Ala Val Cys Glu Phe Pro Ile 245 <210> 88 <211> 185 <212> PRT <213> Mus musculus <400> 88 Met Arg Leu Leu Ile Phe Leu Gly Leu Leu Trp Ser Leu Val Ala Thr Leu Leu Gly Ser Lys Trp Pro Glu Pro Val Phe Gly Arg Leu Val Ser Pro Gly Phe Pro Glu Lys Tyr Ala Asp His Gln Asp Arg Ser Trp Thr Leu Thr Ala Pro Pro Gly Tyr Arg Leu Arg Leu Tyr Phe Thr His Phe Asp Leu Glu Leu Ser Tyr Arg Cys Glu Tyr Asp Phe Val Lys Leu Ser 70 75

Ser Gly Thr Lys Val Leu Ala Thr Leu Cys Gly Gln Glu Ser Thr Asp

| 85 | 90 | 95 |
|-----|----|----|
| | | |
| 0.0 | 70 | |
| | | |

Thr Glu Gln Ala Pro Gly Asn Asp Thr Phe Tyr Ser Leu Gly Pro Ser 100 105 110

Leu Lys Val Thr Phe His Ser Asp Tyr Ser Asn Glu Lys Pro Phe Thr 115 120 125

Gly Phe Glu Ala Phe Tyr Ala Ala Glu Asp Val Asp Glu Cys Arg Val 130 135 140

Ser Leu Gly Asp Ser Val Pro Cys Asp His Tyr Cys His Asn Tyr Leu 145 150 · 155 160

Gly Gly Tyr Tyr Cys Ser Cys Arg Ala Gly Tyr Val Leu His Gln Asn 165 170 175

Lys His Thr Cys Ser Glu Gln Ser Leu 180 185

<210> 89

<211> 643

<212> PRT

<213> Rattus norvegicus

<400> 89

Met Val Thr Ser Thr Gly Leu Leu Leu Leu Gly Leu Leu Gly Gln 1 5 10 15

Leu Trp Ala Gly Ala Ala Ala Asp Ser Glu Ala Val Cys Glu Gly
20 25 30

Thr Ala Cys Tyr Thr Ala His Trp Gly Lys Leu Ser Ala Ala Glu Ala 35 40 45

Gln His Arg Cys Asn Glu Asn Gly Gly Asn Leu Ala Thr Val Lys Ser 50 60

Glu Glu Glu Ala Arg His Val Gln Glu Ala Leu Ala Gln Leu Lys 65 70 75 80

Thr Lys Ala Pro Ser Glu Thr Lys Ile Gly Lys Phe Trp Ile Gly Leu 85 90 95

| Gln | . Arg | Glu | Lys 100 | | Lys | Cys | Thr | Tyr 105 | | a Asp | Leu | Pro | Met 110 | | Gly |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Phe | Ser | Trp 115 | | Gly | Gly | Gly | Glu 120 | _ | Thr | Thr | Tyr | Ser 125 | | Trp | Tyr |
| Lys | Ala 130 | | Lys | Ser | Ser | Cys 135 | | Ser | Lys | Arg | Cys 140 | Val | Ser | Leu | Ile |
| Leu 145 | | Leu | Ser | Leu | Lys 150 | Pro | His | Pro | Ser | His 155 | | Pro | Lys | Trp | His 160 |
| Glu | Ser | Pro | Cys | Gly 165 | Thr | Pro | Asp | Ala | Pro 170 | Gly | Asn | Ser | Ile | Glu 175 | Gly |
| Phe | Leu | Cys | Lys 180 | Phe | Asn | Phe | Lys | Gly 185 | Met | Cys | Ser | Pro | Leu 190 | Ala | Leu |
| Gly | Gly | Pro 195 | Gly | Gln | Leu | Thr | Tyr 200 | Thr | Thr | Pro | Phe | Gln 205 | Ala | Thr | Thr |
| Ser | Ser 210 | Leu | Lys | Ala | Val | Pro 215 | Phe | Ala | Ser | Val | Ala 220 | Asn | Val | Val | Cys |
| Gly 225 | Asp | Glu | Ala | Glu | Ser 230 | Lys | Thr | Asn | Tyr | Tyr 235 | Leu | Cys | Lys | Glu | Thr 240 |
| Thr | Ala | Gly | Val | Phe 245 | His | Trp | Gly | Ser | Ser 250 | Gly | Pro | Leu | Cys | Val 255 | Ser |
| Pro | Lys | Phe | Gly 260 | Cys | Ser | Phe | Asn | Asn 265 | Gly | Gly | Cys | Gln | Gln 270 | Asp | Cys |
| Phe | Glu | Gly 275 | Gly | Asp | Gly | Ser | Phe 280 | Arg | Cys | Gly | Cys | Arg 285 | Pro | Gly | Phe |
| Arg | Leu 290 | Leu | Asp | Asp | Leu | Val 295 | Thr | Cys | Ala | Ser | Arg 300 | Asn | Pro | Cys | Ser |
| Ser 305 | Asn | Pro | Cys | Thr | Gly 310 | Gly | Gly | Met | Cys | His 315 | Ser | Val | Pro | | Ser 320 |
| Glu | Asn | Tyr | Thr | Cys 325 | His | Cys | Pro | Arg | Gly 330 | Tyr | Gln | Leu | Asp | Ser 335 | Ser |

| Gln | Val | His | Cys 340 | | . Asp | Ile | : Asp | Glu 345 | | s Glu | ı Asp | Ser | 9rc 350 | | s Asp |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--------------|------------|------------|------------|------------|
| Gln | Glu | Cys 355 | | Asn | Thr | Pro | Gly 360 | - | Phe | His | Cys | Glu 365 | _ | Trp | Val |
| Gly | Туг 370 | Gln | Ser | Ser | Gly | Ser 375 | _ | Glu | . Glu | ı Ala | . Cys 380 | | Asp | Val | . Asp |
| Glu 385 | Cys | Thr | Ala | Ala | Tyr 390 | Ser | Pro | Cys | Ala | Gln 395 | _ | . Cys | Thr | Asn | Thr 400 |
| Asp | Gly | Ser | Phe | Tyr 405 | Cys | Ser | Cys | Lys | Glu 410 | _ | Tyr | Ile | Met | Ser 415 | _ |
| Glu | Asp | Ser | Thr 420 | Gln | Cys | Glu | Asp | Ile 425 | Asp | Glu | Cys | Leu | Gly 430 | Asn | Pro |
| Cys | Asp | Thr 435 | Leu | Cys | Ile | Asn | Thr 440 | Asp | Gly | Ser | Phe | Arg 445 | Cys | Gly | Cys |
| Pro | Ala 450 | Gly | Phe | Glu | Leu | Ala 455 | Pro | Asn | Gly | Val | Ser 460 | Cys | Thr | Arg | Gly |
| Ser 465 | Met | Phe | Ser | Glu | Leu 470 | Pro | Ala | Arg | Pro | Pro 475 | Gln | Lys | Glu | Asp | Lys 480 |
| Gly | Asp | Gly | Lys | Glu 485 | Ser | Thr | Val | Pro | Leu 490 | Thr | Glu | Met | Pro | Gly 495 | Ser |
| Leu | Asn | Gly | Ser 500 | Lys | Asp | Val | Ser | Asn 505 | Arg | Ala | Gln | Thr | Thr 510 | Asp | Leu |
| Ser | Ile | Gln 515 | Ser | Asp | Ser | Ser | Thr 520 | Ala | Ser | Val | Pro | Leu 525 | Glu | Ile | Glu |
| Val | Ser 530 | Ser | Glu | Ala | Ser | Asp 535 | Val | Trp | Leu | Asp | Leu 540 | Gly | Thr | Tyr | Leu |
| Pro 545 | Thr | Thr | Ser | Gly | His 550 | Ser | Gln | Pro | Thr | His | Glu | Asp | Ser | Val | Pro 560 |

Ala His Ser Asp Ser Asp Thr Asp Gly Gln Lys Leu Leu Phe Tyr 565 570 Ile Leu Gly Thr Val Val Ala Ile Ser Leu Leu Leu Ala Leu Ala Leu 585 Gly Leu Leu Ile Tyr Leu Lys Arg Lys Ala Lys Lys Glu Glu Ile Lys 600 595 605 Glu Lys Lys Ala Gln Asn Ala Ala Asp Ser Tyr Ser Trp Ile Pro Glu 610 615 Arg Ala Glu Ser Arg Ala Pro Glu Asn Gln Tyr Ser Pro Thr Pro Gly 625 630 Thr Asp Cys <210> 90 <211> 686 <212> PRT <213> Homo sapiens <400> 90 Met Arg Leu Leu Thr Leu Leu Gly Leu Leu Cys Gly Ser Val Ala Thr Pro Leu Gly Pro Lys Trp Pro Glu Pro Val Phe Gly Arg Leu Ala Ser Pro Gly Phe Pro Gly Glu Tyr Ala Asn Asp Gln Glu Arg Arg Trp Thr Leu Thr Ala Pro Pro Gly Tyr Arg Leu Arg Leu Tyr Phe Thr His Phe Asp Leu Glu Leu Ser His Leu Cys Glu Tyr Asp Phe Val Lys Leu Ser Ser Gly Ala Lys Val Leu Ala Thr Leu Cys Gly Gln Glu Ser Thr Asp 85

Thr Glu Arg Ala Pro Gly Lys Asp Thr Phe Tyr Ser Leu Gly Ser Ser

105

100

| Leu | Asp | Ile 115 | Thr | Phe | Arg | Ser | Asp 120 | Tyr | Ser | Asn | Glu | Lys 125 | Pro | Phe | Thr |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Gly | Phe 130 | Glu | Ala | Phe | Tyr | Ala 135 | Ala | Glu | Asp | Ile | Asp 140 | Glu | Cys | Gln | Val |
| Ala 145 | Pro | Gly | Glu | Ala | Pro 150 | Thr | Cys | Asp | His | His 155 | Cys | His | Asn | His | Leu 160 |
| Gly | Gly | Phe | Tyr | Cys 165 | Ser | Cys | Arg | Ala | Gly 170 | Tyr | Val | Leu | His | Arg 175 | Asn |
| Lys | Arg | Thr | Cys 180 | Ser | Ala | Leu | Cys | Ser 185 | Gly | Gln | Val | Phe | Thr 190 | Gln | Arg |
| Ser | Gly | Glu 195 | Leu | Ser | Ser | Pro | Glu 200 | Tyr | Pro | Arg | Pro | Tyr 205 | Pro | Lys | Leu |
| Ser | Ser 210 | Cys | Thr | Tyr | Ser | Ile 215 | Ser | Leu | Glu | Glu | Gly 220 | Phe | Ser | Val | Ile |
| Leu 225 | Asp | Phe | Val | Glu | Ser 230 | Phe | Asp | Val | Glu | Thr 235 | His | Pro | Glu | Thr | Leu 240 |
| Cys | Pro | Tyr | Asp | Phe 245 | Leu | Lys | Ile | Gln | Thr 250 | Asp | Arg | Glu | Glu | His 255 | Gly |
| Pro | Phe | Cys | Gly 260 | Lys | Thr | Leu | Pro | His 265 | Arg | Ile | Glu | Thr | Lys 270 | Ser | Asn |
| Thr | Val | Thr 275 | Ile | Thr | Phe | Val | Thr 280 | Asp | Glu | Ser | Gly | Asp 285 | His | Thr | Gly |
| Trp | Lys 290 | Ile | His | Tyr | Thr | Ser 295 | Thr | Ala | Gln | Pro | Cys 300 | Pro | Tyr | Pro | Met |
| Ala 305 | Pro | Pro | Asn | Gly | His 310 | Val | Ser | Pro | Val | Gln 315 | Ala | Lys | Tyr | Ile | Leu 320 |
| Lys | Asp | Ser | Phe | Ser 325 | Ile | Phe | Cys | Glu | Thr 330 | Gly | Tyr | Glu | Leu | Leu 335 | Gln |
| al | TT i e | Tour | Dro | T 011 | Two | Ser | Dhe | ሞኮ ኦ | λls | V=1 | Cve | Glr | Live | Acr | Glv |

Ser Trp Asp Arg Pro Met Pro Ala Cys Ser Ile Val Asp Cys Gly Pro 355 360 365

Pro Asp Asp Leu Pro Ser Gly Arg Val Glu Tyr Ile Thr Gly Pro Gly 370 375 380

Val Thr Thr Tyr Lys Ala Val Ile Gln Tyr Ser Cys Glu Glu Thr Phe 385 390 395 400

Tyr Thr Met Lys Val Asn Asp Gly Lys Tyr Val Cys Glu Ala Asp Gly
405 410 415

Phe Trp Thr Ser Ser Lys Gly Glu Lys Ser Leu Pro Val Cys Glu Pro 420 425 430

Val Cys Gly Leu Ser Ala Arg Thr Thr Gly Gly Arg Ile Tyr Gly Gly
435
440
445

Gln Lys Ala Lys Pro Gly Asp Phe Pro Trp Gln Val Leu Ile Leu Gly 450 455 460

Gly Thr Thr Ala Ala Gly Ala Leu Leu Tyr Asp Asn Trp Val Leu Thr 465 470 475 480

Ala Ala His Ala Val Tyr Glu Gln Lys His Asp Ala Ser Ala Leu Asp 485 490 495

Ile Arg Met Gly Thr Leu Lys Arg Leu Ser Pro His Tyr Thr Gln Ala 500 505 510

Trp Ser Glu Ala Val Phe Ile His Glu Gly Tyr Thr His Asp Ala Gly 515 520 525

Phe Asp Asn Asp Ile Ala Leu Ile Lys Leu Asn Asn Lys Val Val Ile 530 535 540

Asn Ser Asn Ile Thr Pro Ile Cys Leu Pro Arg Lys Glu Ala Glu Ser 545 550 555 560

Phe Met Arg Thr Asp Asp Ile Gly Thr Ala Ser Gly Trp Gly Leu Thr 565 570 575

Gln Arg Gly Phe Leu Ala Arg Asn Leu Met Tyr Val Asp Ile Pro Ile Val Asp His Gln Lys Cys Thr Ala Ala Tyr Glu Lys Pro Pro Tyr Pro 600 Arg Gly Ser Val Thr Ala Asn Met Leu Cys Ala Gly Leu Glu Ser Gly Gly Lys Asp Ser Cys Arg Gly Asp Ser Gly Gly Ala Leu Val Phe Leu 630 Asp Ser Glu Thr Glu Arg Trp Phe Val Gly Gly Ile Val Ser Trp Gly 650 Ser Met Asn Cys Gly Glu Ala Gly Gln Tyr Gly Val Tyr Thr Lys Val 660 665 Ile Asn Tyr Ile Pro Trp Ile Glu Asn Ile Ile Ser Asp Phe 680 <210> 91 <211> 185 <212> PRT <213> Homo sapiens <400> 91 Met Arg Leu Leu Thr Leu Leu Gly Leu Leu Cys Gly Ser Val Ala Thr Pro Leu Gly Pro Lys Trp Pro Glu Pro Val Phe Gly Arg Leu Ala Ser 20 Pro Gly Phe Pro Gly Glu Tyr Ala Asn Asp Gln Glu Arg Arg Trp Thr 35 40 Leu Thr Ala Pro Pro Gly Tyr Arg Leu Arg Leu Tyr Phe Thr His Phe 50 55 Asp Leu Glu Leu Ser His Leu Cys Glu Tyr Asp Phe Val Lys Leu Ser 65 70 Ser Gly Ala Lys Val Leu Ala Thr Leu Cys Gly Gln Glu Ser Thr Asp 85 90

Thr Glu Arg Ala Pro Gly Lys Asp Thr Phe Tyr Ser Leu Gly Ser Ser 100 105 Leu Asp Ile Thr Phe Arg Ser Asp Tyr Ser Asn Glu Lys Pro Phe Thr 120 Gly Phe Glu Ala Phe Tyr Ala Ala Glu Asp Ile Asp Glu Cys Gln Val Ala Pro Gly Glu Ala Pro Thr Cys Asp His His Cys His Asn His Leu 150 Gly Gly Phe Tyr Cys Ser Cys Arg Ala Gly Tyr Val Leu His Arg Asn 170 175 165 Lys Arg Thr Cys Ser Glu Gln Ser Leu 180 <210> 92 <211> 728 <212> PRT <213> Homo sapiens <400> 92 Met Arg Trp Leu Leu Tyr Tyr Ala Leu Cys Phe Ser Leu Ser Lys Ala Ser Ala His Thr Val Glu Leu Asn Asn Met Phe Gly Gln Ile Gln Ser Pro Gly Tyr Pro Asp Ser Tyr Pro Ser Asp Ser Glu Val Thr Trp 40 Asn Ile Thr Val Pro Asp Gly Phe Arg Ile Lys Leu Tyr Phe Met His Phe Asn Leu Glu Ser Ser Tyr Leu Cys Glu Tyr Asp Tyr Val Lys Val Glu Thr Glu Asp Gln Val Leu Ala Thr Phe Cys Gly Arg Glu Thr Thr 90 85

Asp Thr Glu Gln Thr Pro Gly Gln Glu Val Val Leu Ser Pro Gly Ser

| L00 | 105 | 110 |
|-----|-----|-----|
| | | |

Phe Met Ser Ile Thr Phe Arg Ser Asp Phe Ser Asn Glu Glu Arg Phe 115 120 125

Thr Gly Phe Asp Ala His Tyr Met Ala Val Asp Val Asp Glu Cys Lys 130 140

Glu Arg Glu Asp Glu Glu Leu Ser Cys Asp His Tyr Cys His Asn Tyr 145 150 155 160

Ile Gly Gly Tyr Tyr Cys Ser Cys Arg Phe Gly Tyr Ile Leu His Thr
165 170 175

Asp Asn Arg Thr Cys Arg Val Glu Cys Ser Asp Asn Leu Phe Thr Gln 180 185 190

Arg Thr Gly Val Ile Thr Ser Pro Asp Phe Pro Asn Pro Tyr Pro Lys
195 200 205

Ser Ser Glu Cys Leu Tyr Thr Ile Glu Leu Glu Glu Gly Phe Met Val 210 215 220

Asn Leu Gln Phe Glu Asp Ile Phe Asp Ile Glu Asp His Pro Glu Val 225 230 235 240

Pro Cys Pro Tyr Asp Tyr Ile Lys Ile Lys Val Gly Pro Lys Val Leu 245 250 255

Gly Pro Phe Cys Gly Glu Lys Ala Pro Glu Pro Ile Ser Thr Gln Ser 260 265 270

His Ser Val Leu Ile Leu Phe His Ser Asp Asn Ser Gly Glu Asn Arg 275 280 285

Gly Trp Arg Leu Ser Tyr Arg Ala Ala Gly Asn Glu Cys Pro Glu Leu 290 295 300

Gln Pro Pro Val His Gly Lys Ile Glu Pro Ser Gln Ala Lys Tyr Phe 305 310 315 320

Phe Lys Asp Gln Val Leu Val Ser Cys Asp Thr Gly Tyr Lys Val Leu 325 330 335

| Lys | a Asp | Asn | Val 340 | | n Met | Asp | Thr | 7 Phe 345 | | n Ile | e Glu | ı Cys | 350 | | s Asp |
|------------|------------|------------|------------|------------|------------|------------|------------|--------------|------------|------------|------------|------------|------------|------------|------------|
| Gly | Thr | Trp 355 | | Asn | Lys | Ile | 9 Pro | | Cys | : Lys | s Il∈ | 2 Va] | | Cys | arg |
| Ala | Pro 370 | | Glu | Leu | Glu | His | | Leu | ı Ile | . Thr | Phe 380 | | Thr | Arg | , Asn |
| Asn 385 | | Thr | Thr | Tyr | Lys 390 | | Glu | Ile | : Lys | 395 | | Cys | Gln | Glu | Pro 400 |
| Tyr | Tyr | Lys | Met | Leu 405 | Asn | Asn | Asn | Thr | Gly 410 | | Tyr | Thr | Cys | Ser 415 | |
| Gln | Gly | Val | Trp 420 | Met | Asn | Lys | Val | Leu 425 | _ | Arg | Ser | Leu | Pro 430 | | Cys |
| Leu | Pro | Glu 435 | Cys | Gly | Gln | Pro | Ser 440 | Arg | Ser | Leu | Pro | Ser 445 | | Val | Lys |
| Arg | Ile 450 | Ile | Gly | Gly | Arg | Asn 455 | Ala | Glu | Pro | Gly | Leu 460 | Phe | Pro | Trp | Gln |
| Ala 465 | Leu | Ile | Val | Val | Glu 470 | Asp | Thr | Ser | Arg | Val 475 | Pro | Asn | Asp | Lys | Trp 480 |
| Phe | Gly | Ser | Gly | Ala 485 | Leu | Leu | Ser | Ala | Ser 490 | Trp | Ile | Leu | Thr | Ala 495 | Ala |
| His | Val | Leu | Arg 500 | | Gln | Arg | Arg | Asp 505 | | Thr | Val | Ile | Pro 510 | Val | Ser |
| Lys | Glu | His 515 | Val | Thr | Val | Tyr | Leu 520 | Gly | Leu | His | Asp | Val 525 | Arg | Asp | Lys |
| Ser | Gly 530 | Ala | Val | Asn | Ser | Ser 535 | Ala | Ala | Arg | Val | Val 540 | Leu | His | Pro | Asp |
| Phe 545 | Asn | Ile | Gln | Asn | Tyr 550 | Asn | His | Asp | Ile | Ala 555 | Leu | Val | Gln | Leu | Gln 560 |
| Glu | Pro | Val | Pro | Leu | Gly | Pro | His | Val | Met | Pro | Val | Cys | Leu | Pro | Arg |

565 570 575

Leu Glu Pro Glu Gly Pro Ala Pro His Met Leu Gly Leu Val Ala Gly 580 585 590

Trp Gly Ile Ser Asn Pro Asn Val Thr Val Asp Glu Ile Ile Ser Ser 595 600 605

Gly Thr Arg Thr Leu Ser Asp Val Leu Gln Tyr Val Lys Leu Pro Val 610 620

Val Pro His Ala Glu Cys Lys Thr Ser Tyr Glu Ser Arg Ser Gly Asn 625 630 635

Tyr Ser Val Thr Glu Asn Met Phe Cys Ala Gly Tyr Tyr Glu Gly Gly 645 650 655

Lys Asp Thr Cys Leu Gly Asp Ser Gly Gly Ala Phe Val Ile Phe Asp 660 665 670

Asp Leu Ser Gln Arg Trp Val Val Gln Gly Leu Val Ser Trp Gly Gly 675 680 685

Pro Glu Glu Cys Gly Ser Lys Gln Val Tyr Gly Val Tyr Thr Lys Val 690 695 700

Ser Asn Tyr Val Asp Trp Val Trp Glu Gln Met Gly Leu Pro Gln Ser 705 710 715 720

Val Val Glu Pro Gln Val Glu Arg 725

<210> 93

<211> 699

<212> PRT

<213> Homo sapiens

<400> 93

Met Arg Trp Leu Leu Tyr Tyr Ala Leu Cys Phe Ser Leu Ser Lys
1 5 10 15

Ala Ser Ala His Thr Val Glu Leu Asn Asn Met Phe Gly Gln Ile Gln 20 25 30

| Ser | Pro | Gly 35 | Tyr | Pro | Asp | Ser | Tyr 40 | Pro | Ser | Asp | Ser | Glu 45 | Val | Thr | Trp |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Asn | Ile 50 | Thr | Val | Pro | Asp | Gly 55 | Phe | Arg | Ile | Lys | Leu 60 | Tyr | Phe | Met | His |
| Phe 65 | Asn | Leu | Glu | Ser | Ser 70 | Tyr | Leu | Cys | Glu | Tyr 75 | Asp | Tyr | Val | Lys | Val 80 |
| Glu | Thr | Glu | Asp | Gln 85 | Val | Leu | Ala | Thr | Phe 90 | Cys | Gly | Arg | Glu | Thr 95 | Thr |
| Asp | Thr | Glu | Gln 100 | Thr | Pro | Gly | Gln | Glu 105 | Val | Val | Leu | Ser | Pro 110 | Gly | Ser |
| Phe | Met | Ser 115 | Ile | Thr | Phe | Arg | Ser 120 | Asp | Phe | Ser | Asn | Glu 125 | Glu | Arg | Phe |
| Thr | Gly 130 | Phe | Asp | Ala | His | Tyr 135 | Met | Ala | Val | Asp | Val 140 | Asp | Glu | Cys | Lys |
| Glu 145 | Arg | Glu | Asp | Glu | Glu 150 | Leu | Ser | Cys | Asp | His 155 | туг | Cys | His | Asn | Tyr 160 |
| Ile | Gly | Gly | Tyr | Tyr 165 | Cys | Ser | Cys | Arg | Phe 170 | Gly | Tyr | Ile | Leu | His 175 | Thr |
| Asp | Asn | Arg | Thr 180 | Cys | Arg | Val | Glu | Cys 185 | Ser | Asp | Asn | Leu | Phe 190 | Thr | Gln |
| Arg | Thr | Gly 195 | Val | Ile | Thr | Ser | Pro 200 | Asp | Phe | Pro | Asn | Pro 205 | Tyr | Pro | Lys |
| Ser | Ser 210 | Glu | Cys | Leu | Tyr | Thr 215 | Ile | Glu | Leu | Glu | Glu 220 | Gly | Phe | Met | Val |
| Asn 225 | Leu | Gln | Phe | Glu | Asp 230 | Ile | Phe | Asp | Ile | Glu 235 | Asp | His | Pro | Glu | Val 240 |
| Pro | Cys | Pro | Tyr | Asp 245 | Tyr | Ile | Lys | Ile | Lys 250 | Val | Gly | Pro | Lys | Val 255 | Leu |
| Gly | Pro | Phe | Cys 260 | Gly | Glu | Lys | Ala | Pro 265 | Glu | Pro | Ile | Ser | Thr 270 | Gln | Ser |

| His | Ser | Val 275 | Leu | Ile | Leu | Phe | His 280 | Ser | Asp |) Asn | Ser | Gly 285 | | Asn | Arg |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Gly | Trp 290 | Arg | Leu | Ser | Tyr | Arg 295 | | Ala | Gly | ' Asn | Glu 300 | - | Pro | Glu | Let |
| Gln 305 | Pro | Pro | Val | His | Gly 310 | Lys | Ile | Glu | Pro | Ser 315 | | Ala | Lys | Tyr | Phe 320 |
| Phe | Lys | Asp | Gln | Val 325 | Leu | Val | Ser | Cys | Asp 330 | | Gly | Tyr | Lys | Val 335 | |
| Lys | Asp | Asn | Val 340 | Glu | Met | Asp | Thr | Phe 345 | Gln | Ile | Glu | Cys | Leu 350 | Lys | Asp |
| Gly | Thr | Trp 355 | Ser | Asn | Lys | Ile | Pro 360 | Thr | Cys | Lys | Ile | Val 365 | Asp | Cys | Arg |
| Ala | Pro 370 | Gly | Glu | Leu | Glu | His 375 | Gly | Leu | Ile | Thr | Phe 380 | Ser | Thr | Arg | Asn |
| Asn 385 | Leu | Thr | Thr | Tyr | Lys 390 | Ser | Glu | Ile | Lys | Tyr 395 | Ser | Cys | Gln | Glu | Pro 400 |
| Tyr | Tyr | Lys | Met | Leu 405 | Asn | Asn | Asn | Thr | Gly 410 | Ile | Tyr | Thr | Cys | Ser 415 | Ala |
| Gln | Gly | Val | Trp 420 | Met | Asn | Lys | Val | Leu 425 | Gly | Arg | Ser | Leu | Pro 430 | Thr | Cys |
| Leu | Pro | Val 435 | Cys | Gly | Leu | | Lys 440 | Phe | Ser | Arg | _ | Leu 445 | Met | Ala | Arg |
| Ile | Phe 450 | Asn | Gly | Arg | Pro | Ala 455 | Gln | Lys | Gly | Thr | Thr 460 | Pro | Trp | Ile | Ala |
| Met 465 | Leu | Ser | His | Leu | Asn 470 | Gly | Gln | Pro | Phe | Cys 475 | Gly | Gly | Ser | Leu | Leu 480 |
| Gly | Ser | Ser | _ | Ile | Val | Thr | Ala | Ala | His | Cys | Leu | His | Gln | Ser | Leu |

Asp Pro Glu Asp Pro Thr Leu Arg Asp Ser Asp Leu Leu Ser Pro Ser 500 Asp Phe Lys Ile Ile Leu Gly Lys His Trp Arg Leu Arg Ser Asp Glu 520 Asn Glu Gln His Leu Gly Val Lys His Thr Thr Leu His Pro Gln Tyr Asp Pro Asn Thr Phe Glu Asn Asp Val Ala Leu Val Glu Leu Leu Glu 550 Ser Pro Val Leu Asn Ala Phe Val Met Pro Ile Cys Leu Pro Glu Gly 565 570 Pro Gln Gln Glu Gly Ala Met Val Ile Val Ser Gly Trp Gly Lys Gln 585 580 Phe Leu Gln Arg Phe Pro Glu Thr Leu Met Glu Ile Glu Ile Pro Ile 600 Val Asp His Ser Thr Cys Gln Lys Ala Tyr Ala Pro Leu Lys Lys 610 Val Thr Arg Asp Met Ile Cys Ala Gly Glu Lys Glu Gly Gly Lys Asp 625 Ala Cys Ala Gly Asp Ser Gly Gly Pro Met Val Thr Leu Asn Arg Glu 645 650 Arg Gly Gln Trp Tyr Leu Val Gly Thr Val Ser Trp Gly Asp Asp Cys 665 660 Gly Lys Lys Asp Arg Tyr Gly Val Tyr Ser Tyr Ile His His Asn Lys 680 685 675 Asp Trp Ile Gln Arg Val Thr Gly Val Arg Asn 695 690 <210> 94 <211> 239 <212> PRT <213> Mus musculus

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Ser Ser Ser Gly Ser Gln Thr Cys Glu Asp Thr Leu Lys Thr Cys Ser 20 25 30

Val Ile Ala Cys Gly Arg Asp Gly Arg Asp Gly Pro Lys Gly Glu Lys 35 40 45

Gly Glu Pro Gly Gln Gly Leu Arg Gly Leu Gln Gly Pro Pro Gly Lys
50 55 60

Leu Gly Pro Pro Gly Ser Val Gly Ser Pro Gly Ser Pro Gly Pro Lys
65 70 75 80

Xaa Xaa Xaa His Ala Phe Ser Met Gly Lys Lys Ser Gly Lys Lys 115 120 125

Leu Phe Val Thr Asn His Glu Lys Met Pro Phe Ser Lys Val Lys Ser 130 135 140

Leu Cys Thr Glu Leu Gln Gly Thr Val Ala Ile Pro Arg Asn Ala Glu 145 150 155 160

Glu Asn Lys Ala Ile Gln Glu Val Ala Thr Gly Ile Ala Phe Leu Gly
165 170 175

Ile Thr Asp Glu Ala Thr Glu Gly Gln Phe Met Tyr Val Thr Gly Gly
180 185 190

Arg Leu Thr Tyr Ser Asn Trp Lys Lys Asp Glu Pro Asn Asn His Gly
195 200 205

| Ser | Gly 210 | | Asp | Cys | Val | Ile 215 | | Leu | Asp | Asn | Gly 220 | | Trp | Asn | Asp |
|--------------------------|------------|--------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Ile 225 | | Cys | Gln | Ala | Ser 230 | | Lys | Ala | Val | Cys 235 | | Phe | Pro | Ala | |
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| <40 | 0 > | 95 | | | | | | | | | | | | | |
| Met 1 | Glu | Lys | Leu | Ala 5 | Ile | Leu | Leu | Leu | Leu 10 | Ser | Ala | Ser | Ile | Ala 15 | Leu |
| Gly | Asp | Ala | Asn 20 | Leu | Thr | Gln | Leu | Leu 25 | Gly | Leu | Glu | Pro | Leu 30 | Leu | Lys |
| Thr | Lys | Val 35 | Glu | Gln | Thr | Thr | Pro 40 | Glu | Ala | Gln | Val | Glu 45 | Ala | Val | Gln |
| Glu | Gly 50 | Ile | Lys | Glu | Gly | Ser 55 | Cys | Pro | Ser | Asp | Trp 60 | Tyr | Thr | Туг | Gly |
| Ser 65 | His | Cys | Phe | Lys | Phe 70 | Val | Ser | Ile | Gln | Gln 75 | Ser | Phe | Val | Asp | Ser 80 |
| Glu | Gln | Asn | Cys | Leu 85 | Ala | Leu | Gly | Gly | Asn 90 | Leu | Ala | Ser | Val | His 95 | Ser |
| Leu | Leu | | Tyr 100 | | Phe | Met | | Ala 105 | | Thr | Lys | - | Ala 110 | | Gly |
| His | Leu | His 115 | Ser | Thr | Trp | Leu | Gly 120 | Gly | Phe | Asp | Ala | Ile 125 | Lys | Glu | Gly |
| Thr | Trp 130 | Met | Trp | Ser | Asp | Gly 135 | Ser | Arg | Phe | Asp | Tyr 140 | Thr | Asn | Trp | Asp |
| Thr 145 | Asp | Glu | Pro | Asn | Asn 150 | Ala | Gly | Glu | Gly | Glu 155 | Asp | Cys | Leu | His | Met 160 |
| Asn | Ala | Ala | Ser | Ala 165 | Lys | Leu | Trp | Phe | Asp 170 | Val | Pro | Cys | Glu | Trp 175 | Lys |

Phe Ala Ser Leu Cys Ser Arg Arg Met 180 185

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<400> 96

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Ala Ser His Thr Glu Thr Glu Asn Cys Glu Asp Ile Gln Asn Thr Cys
20 25 30

Leu Val Ile Ser Cys Asp Ser Pro Gly Ile Asn Gly Leu Pro Gly Lys
35 40 45

Asp Gly Leu Asp Gly Ala Lys Gly Glu Lys Gly Glu Pro Gly Gln Gly 50 55 60

Leu Ile Gly Leu Gln Gly Leu Pro Gly Met Val Gly Pro Gln Gly Ser 65 70 75 80

Pro Gly Ile Pro Gly Leu Pro Gly Leu Lys Gly Gln Lys Gly Asp Ser 85 90 95

Gly Ile Asp Pro Gly Asn Ser Leu Ala Asn Leu Arg Ser Glu Leu Asp 100 105 110

Asn Ile Lys Lys Trp Leu Ile Phe Ala Gln Gly Lys Gln Val Gly Lys
115 120 . 125

Lys Leu Tyr Leu Thr Asn Gly Lys Lys Met Ser Phe Asn Gly Val Lys 130 135 140

Ala Leu Cys Ala Gln Phe Gln Ala Ser Val Ala Thr Pro Thr Asn Ser 145 150 155 160

Arg Glu Asn Gln Ala Ile Gln Glu Leu Ala Gly Thr Glu Ala Phe Leu 165 170 175

Gly Ile Thr Asp Glu Tyr Thr Glu Gly Gln Phe Val Asp Leu Thr Gly

180 185 190

Lys Arg Val Arg Tyr Gln Asn Trp Asn Asp Gly Glu Pro Asn Asn Ala 195 200 205

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Val Ile Ala Cys Gly Arg Asp Gly Arg Asp Gly Pro Lys Gly Glu Lys 35 40 45

Gly Glu Pro Gly Gln Gly Leu Arg Gly Leu Gln Gly Pro Pro Gly Lys
50 60

Leu Gly Pro Pro Gly Ser Val Gly Ser Pro Gly Ser Pro Gly Pro Lys 70 75 80

Gly Gln Lys Gly Asp His Gly Asp Asn Arg Ala Ile Glu Glu Lys Leu 85 90 95

Ala Asn Met Glu Ala Glu Ile Arg Ile Leu Lys Ser Lys Leu Gln Leu 100 105 110

Thr Asn Lys Leu His Ala Phe Ser Met Gly Lys Lys Ser Gly Lys Lys 115 120 125

Leu Phe Val Thr Asn His Glu Lys Met Pro Phe Ser Lys Val Lys Ser 130 135 140

| Leu 145 | | Thr | · Glu | Leu | Gln 150 | Gly | Thr | Val | Ala | Ile 155 | | Arg | Asn | Ala | Glu 160 |
|--|--------------------------------|---------------------------|-------------------------|-------------------|--------------------------|--------------------------------|--------------------------------|-------------------------|------------------|-------------------|-------------------------|--------------------------------|-------------------------|-------------------|--------------------------------|
| Glu | Asn | Lys | Ala | Ile 165 | Gln | Glu | Val | Ala | Thr 170 | Gly | Ile | Ala | Phe | Leu 175 | Gly |
| Ile | Thr | Asp | Glu 180 | | Thr | Glu | Gly | Gln 185 | Phe | Met | Tyr | Val | Thr 190 | _ | Gly |
| Arg | Leu | Thr 195 | | Ser | Asn | Trp | Lys 200 | Lys | Asp | Glu | Pro | Asn 205 | Asn | His | Gly |
| Ser | Gly 210 | Glu | Asp | Cys | Val | Ile 215 | Ile | Leu | Asp | Asn | Gly 220 | Leu | Trp | Asn | Asp |
| Ile 225 | Ser | Cys | Gln | Ala | Ser 230 | Phe | Lys | Ala | Val | Cys 235 | Glu | Phe | Pro | Ala | |
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| | | | Phe | Thr 5 | Ser | Phe | Leu | Leu | Leu 10 | Cys | Val | Val | Thr | Val 15 | Val |
| Met 1 | Ser | Ile | | 5 | Ser | | | | 10 | • | | | | 15 | |
| Met 1 Tyr | Ser Ala | Ile Glu | Thr 20 | 5 Leu | | Glu | Gly | Val 25 | 10 Gln | Asn | Ser | Cys | Pro 30 | 15 Val | Val |
| Met 1 Tyr | Ser Ala Cys | Ile Glu Ser 35 | Thr 20 Ser | 5 Leu Pro | Thr | Glu Leu | Gly Asn 40 | Val 25 Gly | 10 Gln Phe | Asn Pro | Ser Gly | Cys Lys 45 | Pro 30 Asp | 15 Val Gly | Val Arg |
| Met 1 Tyr Thr | Ser Ala Cys Gly 50 | Ile Glu Ser 35 | Thr 20 Ser Lys | Leu Pro | Thr Gly | Glu Leu Lys 55 | Gly Asn 40 Gly | Val 25 Gly Glu | Gln Phe Pro | Asn Pro Gly | Ser Gly Gln 60 | Cys Lys 45 Gly | Pro 30 Asp Leu | Val Gly Arg | Val Arg Gly |
| Met 1 Tyr Thr Asp Leu 65 | Ser Ala Cys Gly 50 | Glu Ser 35 Ala | Thr 20 Ser Lys | Leu Pro Gly | Thr Gly Glu Gly | Glu Leu Lys 55 Lys | Gly Asn 40 Gly Val | Val 25 Gly Glu | Gln Phe Pro | Asn Pro Gly Thr | Ser Gly Gln 60 | Cys Lys 45 Gly Pro | Pro 30 Asp Leu | Val Gly Arg | Val Arg Gly Asn 80 |

Lys Val Gly Lys Lys Tyr Phe Val Ser Ser Val Lys Lys Met Ser Leu 130 135 . 140 Asp Arg Val Lys Ala Leu Cys Ser Glu Phe Gln Gly Ser Val Ala Thr 160 Pro Arg Asn Ala Glu Glu Asn Ser Ala Ile Gln Lys Val Ala Lys Asp Ile Ala Tyr Leu Gly Ile Thr Asp Val Arg Val Glu Gly Ser Phe Glu 180 . 185 Asp Leu Thr Gly Asn Arg Val Arg Tyr Thr Asn Trp Asn Asp Gly Glu 200 Pro Asn Asn Thr Gly Asp Gly Glu Asp Cys Val Val Ile Leu Gly Asn Gly Lys Trp Asn Asp Val Pro Cys Ser Asp Ser Phe Leu Ala Ile Cys Glu Phe Ser Asp <210> 99 <211> 381 <212> PRT <213> Macaca nemestrina <400> 99 Met Ser Asp Ser Lys Glu Pro Arg Leu Gln Gln Leu Asp Leu Leu Glu 5 10 Glu Glu Gln Leu Gly Gly Val Gly Phe Arg Gln Thr Arg Gly Tyr Lys 20 Ser Leu Ala Gly Cys Leu Gly His Gly Pro Leu Val Leu Gln Leu Leu 40 35 Ser Phe Thr Leu Leu Ala Gly Leu Leu Val Gln Val Ser Lys Val Pro 55

Ser Glu Leu Arg Ala Leu Arg Asn Trp Val Leu Phe Ser Leu Ser Glu 120

115

125

| Ser 65 | Ser | Leu | Ser | Gln | Gly 70 | Gln | Ser | Lys | Gln | Asp 75 | Ala | Ile | . Tyr | Gln | 80 |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Leu | Thr | Gln | Leu | Lys 85 | Val | Ala | Val | Ser | Glu 90 | Leu | Ser | Glu | Lys | Ser 95 | . Lys |
| Gln | Gln | Glu | Ile 100 | Tyr | Gln | Glu | Leu | Thr 105 | | Leu | Lys | Ala | Ala 110 | | Gl |
| Glu | Leu | Pro 115 | Glu | Lys | Ser | Lys | GÌn 120 | Gln | Glu | Ile | Tyr | Glu 125 | Glu | Leu | Thi |
| Arg | Leu 130 | Arg | Ala | Ala | Val | Gly 135 | Glu | Leu | Pro | Glu | Lys 140 | Ser | Lys | Leu | Glr |
| Glu 145 | Ile | Tyr | Gln | Glu | Leu 150 | Thr | Arg | Leu | Lys | Ala 155 | Ala | Val | Gly | Glu | Leu 160 |
| Pro | Glu | Lys | Ser | Lys 165 | Gln | Gln | Glu | Ile | Tyr 170 | Gln | Glu | Leu | Ser | Arg 175 | Leu |
| Lys | Ala | Ala | Val 180 | Gly | Asp | Leu | Pro | Glu 185 | Lys | Ser | Lys | Gln | Gln 190 | Glu | Ile |
| Tyr | Gln- | Lys 195 | Leu | Thr | Gln | Leu | Lys 200 | Ala | Ala | Val | Asp | Gly 205 | Leu | Pro | Asp |
| Arg | Ser 210 | Lys | Gln | Gln | Ğlu | Ile 215 | Tyr | Gln | Glu | Leu | Ile 220 | Gln | Leu | Lys | Ala |
| Ala 225 | Val | Glu | Arg | Leu | Cys 230 | His | Pro | Cys | Pro | Trp 235 | Glu | Trp | Thr | Phe | Phe 240 |
| Gln | Gly | Asn | Cys | Tyr 245 | Phe | Met | Ser | Asn | Ser 250 | Gln | Arg | Asn | Trp | His 255 | Asp |
| Ser | Ile | Thr | Ala 260 | Cys | Gln | Glu | Val | Gly 265 | Ala | Gln | Leu | Val | Val 270 | Ile | Lys |
| Ser | Ala | Glu 275 | Glu | Gln | Asn | Phe | Leu | Gln | Leu | Gln | Ser | Ser | Arg | Ser | Asn |

Arg Phe Thr Trp Met Gly Leu Ser Asp Leu Asn His Glu Gly Thr Trp Gln Trp Val Asp Gly Ser Pro Leu Leu Pro Ser Phe Lys Gln Tyr Trp 310 315 Asn Lys Gly Glu Pro Asn Asn Val Gly Glu Glu Asp Cys Ala Glu Phe 325 330 Ser Gly Asn Gly Trp Asn Asp Asp Lys Cys Asn Leu Ala Lys Phe Trp Ile Cys Lys Lys Ser Ala Ala Ser Cys Ser Gly Asp Glu Glu Arg Leu 355 360 365 Leu Ser Pro Ala Pro Thr Thr Pro Asn Pro Pro Pro Ala 370 375 <210> 100 <211> 246 <212> PRT <213> Carassius auratus <400> 100 Leu Leu Leu Gln Phe Ala Leu Gln Leu Leu Asp Gly Ala Glu Pro Gln Asn Leu Asn Cys Pro Ala Tyr Gly Gly Val Pro Gly Thr Pro Gly His Asn Gly Leu Pro Gly Arg Asp Gly Arg Asp Gly Lys Asp Gly Ala Ile Gly Pro Lys Gly Glu Lys Gly Glu Ser Gly Val Ser Val Gln Gly Pro Pro Gly Lys Ala Gly Pro Pro Gly Thr Ala Gly Glu Lys Gly Glu Arg Gly Pro Ser Gly Pro Gln Gly Ser Pro Gly Ser Glu Ser Val Leu Glu Ser Leu Lys Ser Glu Ile Gln Gln Leu Lys Ala Lys Ile Ala Thr 100 105 110

Phe Glu Lys Val Ser Ser Val Cys His Phe Arg Lys Val Gly Gln Lys 115 120 Tyr Tyr Ile Thr Asp Gly Val Val Gly Asn Phe Asp Gln Gly Leu Lys 130 Ser Cys Met Glu Phe Gly Gly Thr Met Val Ser Pro Arg Thr Ser Ala 150 Glu Asn Gln Ala Leu Leu Lys Leu Val Val Ser Ser Gly Leu Gly Ser Lys Lys Pro Tyr Ile Gly Val Thr Asp Arg Lys Thr Glu Gly Gln Phe 180 185 Val Asp Thr Glu Gly Lys Gln Leu Thr Phe Thr Asn Trp Gly Pro Gly 200 Gln Pro Asp Asp Tyr Lys Gly Leu Gln Asp Cys Gly Val Ile Glu Asp Thr Gly Leu Trp Asp Asp Gly Gly Cys Gly Asp Ile Arg Pro Ile Met Cys Glu Ile Asp Ile Lys 245 <210> 101 <211> 251 <212> PRT <213> Danio rerio <400> 101 Met Ala Leu Leu Lys Leu Phe Leu Gly Ala Leu Leu Leu Gln Leu 5 10 Val Leu Gln Leu Met Ala Gly Ala Ala Asp Pro Gln Ser Leu Asn Cys 20 Pro Ala Tyr Ala Gly Val Pro Gly Thr Pro Gly His Asn Gly Leu Pro 35 40 Gly Arg Asp Gly Arg Val Gly Arg Asp Gly Ala Asn Gly Pro Lys Gly 50 55

| Glu : 65 | Lys | Gly | Glu | Pro | Gly 70 | Val | Asn | Val | Gln | Gly 75 | Pro | Pro | Gly | Lys | Ala 80 |
|---------------------------|------------|------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Gly 1 | Pro | Pro | Gly | Pro 85 | Ala | Gly | Ala | Lys | Gly 90 | Glu | Arg | Gly | Pro | Ser 95 | Gly |
| Leu 1 | Pro | Gly | Gln 100 | Asp | Cys | Met | Ser | Asp 105 | Ser | Leu | Lys | Ser | Glu 110 | Leu | Gln |
| Lys 1 | Leu | Ser 115 | Asp | Lys | Ile | Ala | Leu 120 | Ile | Glu | Lys | Val | Val 125 | Asn | Phe | Lys |
| Thr I | Phe 130 | Lys | Lys | Val | Gly | Gln 135 | Lys | Tyr | Tyr | Val | Thr 140 | Asp | Asp | Val | Glu |
| Glu 7 145 | Fhr | Phe | Asp | Lys | Gly 150 | Met | Gln | Tyr | Cys | Ser 155 | Ser | Asn | Gly | Gly | Ala 160 |
| Leu V | /al | Leu | Pro | Arg 165 | Thr | Leu | Glu | Glu | Asn 170 | Ala | Leu | Leu | Lys | Val 175 | Phe |
| Val S | Ser | Ser | Ala 180 | Phe | Lys | Arg | Leu | Phe 185 | Ile | Arg | Ile | Thr | Asp 190 | Arg | Glu |
| Lys G | | Gly 195 | Glu | Phe | Val | Asp | Thr 200 | Asp | Arg | Lys | Lys | Leu 205 | Thr | Phe | Thr |
| Asn 1 | Trp 210 | Gly | Pro | Asn | Gln | Pro 215 | Asp | Asn | Tyr | _ | Gly 220 | Ala | Gln | Asp | Cys |
| Gly A 225 | Ala | Ile | Ala | Asp | Ser 230 | Gly | Leu | Trp | Asp | Asp 235 | Val | Ser | Cys | Asp | Ser 240 |
| Leu T | Эr | Pro | Ile | Ile 245 | Cys | Glu | Ile | Glu | Ile 250 | Lys | | | | | |
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Ala Tyr Gly Gly Val Pro Gly Thr Pro Gly His Asn Gly Leu Pro Gly 35 40 45

Arg Asp Gly Arg Asp Gly Lys Asp Gly Ala Ile Gly Pro Lys Gly Glu 50 55 60

Lys Gly Glu Ser Gly Val Ser Val Gln Gly Pro Pro Gly Lys Ala Gly 65 70 75 80

Pro Pro Gly Pro Ala Gly Glu Lys Gly Glu Arg Gly Pro Thr Gly Ser 85 90 95

Gln Gly Ser Pro Gly Ser Glu Ser Val Leu Glu Ser Leu Lys Ser Glu 100 105 110

Ile Gln Gln Leu Lys Ala Lys Ile Ala Thr Phe Glu Lys Val Ala Ser 115 120 125

Val Gly His Phe Arg Gln Val Gly Gln Lys Tyr Tyr Ile Thr Asp Gly 130 135 140

Val Val Gly Thr Phe Asp Gln Gly Leu Lys Phe Cys Lys Asp Phe Gly 145 150 155 160

Gly Thr Met Val Phe Pro Arg Thr Ser Ala Glu Asn Gln Ala Leu Leu 165 170 175

Lys Leu Val Val Ser Ser Gly Leu Ser Ser Lys Lys Pro Tyr Ile Gly 180 185 190

Val Thr Asp Arg Glu Thr Glu Gly Arg Phe Val Asn Thr Glu Gly Lys 195 200 205

Gln Leu Thr Phe Thr Asn Trp Gly Pro Gly Gln Pro Asp Asp Tyr Lys 210 220

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125

Asp Leu Glu Ala Lys Ile Arg Val Leu Glu Asp Asp Leu Ser Arg Tyr 120

115

| 145 | Ser Thr | | Lys Lys | Tyr | Asn | Phe | Glu 155 | Lys | Gly | Lys | Ser | Leu 160 |
|----------------------|---------------------|--------------|---------------|------------|------------------|------------|-------------------|------------|------------------|------------------|------------------|------------|
| Cys Ala | Lys Ala | Gly S 165 | Ser Val | Leu | Ala | Ser 170 | Pro | Arg | Asn | Glu | Ala 175 | Glu |
| Asn Thr | Ala Leu 180 | Lys A | sp Leu | Ile | Asp 185 | Pro | Ser | Ser | Gln | Ala 190 | Tyr | Ile |
| Gly Ile | Ser Asp 195 | Ala G | ln Thr | Glu 200 | Gly | Arg | Phe | Met | Tyr 205 | Leu | Ser | Gly |
| Gly Pro 1 210 | Leu Thr | Tyr S | er Asn 215 | Trp | Lys | Pro | Gly | Glu 220 | Pro | Asn | Asn | His |
| Lys Asn (225 | Glu Asp | | la Val 30 | Ile | Glu | Asp | Ser 235 | Gly | Lys | Trp | Asn | Asp 240 |
| Leu Asp (| Cys Ser | Asn S 245 | er Asn | Ile | Phe | Ile 250 | Ile | Cys | Glu | Leu | | |
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| Met Leu I 1 | Leu Leu | Pro Lo | eu Leu | Val | Leu | Leu | Cvc | W-1 | 17 n 1 | 0 | | |
| | | | | | | 10 | Cys | vai | · | ser | Val 15 | Ser |
| Ser Ser G | Sly Ser 20 | Gln Tl | hr Cys | Glu | | 10 | | | | | 15 | |
| Ile Ala C | 20 | | | | Glu 25 | 10 Thr | Leu | Lys Lys | Thr | Cys 30 | 15 Ser | Val |
| Ile Ala C | 20 Cys Gly 35 | Arg As | sp Gly | Arg 40 | Glu 25 Asp | Thr | Leu Pro Gly | Lys Lys | Thr Gly 45 | Cys 30 Glu | 15 Ser Lys | Val Gly |

Lys Lys Ala Leu Ser Leu Lys Asp Val Val Asn Val Gly Lys Lys Met 130 135 140

| O111 | Lys | Oly | | 85 | O. J | | 501 | | 90 | | | , , | ~ 1 | 95 | |
|------------------------------|--------------|----------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Asn | Met | Glu | Ala 100 | Glu | Ile | Asn | Thr | Leu 105 | Lys | Ser | Lys | Leu | Glu 110 | Leu | Thr |
| Asn | Lys | Leu 115 | His | Ala | Phe | Ser | Met 120 | Gly | Lys | Lys | Ser | Gly 125 | Lys | Lys | Phe |
| Phe | Val 130 | Thr | Asn | His | Glu | Arg 135 | Met | Pro | Phe | Ser | Lys 140 | Val | Lys | Ala | Leu |
| Cys 145 | Ser | Glu | Leu | Arg | Gly 150 | Thr | Val | Ala | Ile | Pro 155 | Arg | Asn | Ala | Glu | Glu 160 |
| Asn | Lys | Ala | Ile | Gln 165 | Glu | Val | Ala | Lys | Thr 170 | Ser | Ala | Phe | Leu | Gly 175 | Ile |
| Thr | Asp | Glu | Val 180 | Thr | Glu | Gly | Gln | Phe 185 | Met | Tyr | Val | Thr | Gly 190 | Gly | Arg |
| Leu | Thr | Tyr 195 | Ser | Asn | Trp | Lys | Lys 200 | Asp | Glu | Pro | Asn | Asp 205 | His | Gly | Ser |
| Gly | Glu 210 | Asp | Cys | Val | Thr | Ile 215 | Val | Asp | Asn | Gly | Leu 220 | Trp | Asn | Asp | Ile |
| Ser 225 | Cys | Gln | Ala | Ser | His 230 | Thr | Ala | Val | Cys | Glu 235 | Phe | Pro | Ala | | |
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| Tyr | Ala | Glu | Thr 20 | Leu | Thr | Glu | Gly | Ala 25 | Gln | Ser | Ser | Cys | Pro 30 | Val | Ile |
| Ala | Cys | Ser | Ser | Pro | Gly | Leu | Asn | Gly | Phe | Pro | Gly | Lys | Asp | Gly | His |
| | | | | | | | | | | | | | | | |

Gln Lys Gly Asp Arg Gly Asp Ser Arg Ala Ile Glu Val Lys Leu Ala

35 40 45

Asp Gly Ala Lys Gly Glu Lys Gly Glu Pro Gly Gln Gly Leu Arg Gly 50 55 60

Leu Gln Gly Pro Pro Gly Lys Val Gly Pro Ala Gly Pro Pro Gly Asn 70 75 80

Pro Gly Ser Lys Gly Ala Thr Gly Pro Lys Gly Asp Arg Gly Glu Ser 85 90 95

Val Glu Phe Asp Thr Thr Asn Ile Asp Leu Glu Ile Ala Ala Leu Arg 100 105 110

Ser Glu Leu Arg Ala Met Arg Lys Trp Val Leu Leu Ser Met Ser Glu 115 120 125

Asn Val Gly Lys Lys Tyr Phe Met Ser Ser Val Arg Arg Met Pro Leu 130 135 140

Asn Arg Ala Lys Ala Leu Cys Ser Glu Leu Gln Gly Thr Val Ala Thr 145 150 155 160

Pro Arg Asn Ala Glu Glu Asn Arg Ala Ile Gln Asn Val Ala Lys Asp 165 170 175

Val Ala Phe Leu Gly Ile Thr Asp Gln Arg Thr Glu Asn Val Phe Glu 180 185 190

Asp Leu Thr Gly Asn Arg Val Arg Tyr Thr Asn Trp Asn Glu Gly Glu
195 200 205

Pro Asn Asn Val Gly Ser Gly Glu Asn Cys Val Val Leu Leu Thr Asn 210 215 220

Gly Lys Trp Asn Asp Val Pro Cys Ser Asp Ser Phe Leu Val Val Cys 225 230 235 240

Glu Phe Ser Asp

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Met Ser Leu Phe Pro Ser Leu Pro Leu Leu Leu Ser Met Val Ala 1 5 10 15

Ala Ser Tyr Ser Glu Thr Val Thr Cys Glu Asp Ala Gln Lys Thr Cys 20 25 30

Pro Ala Val Ile Ala Cys Ser Ser Pro Gly Ile Asn Gly Phe Pro Gly 35 40 45

Lys Asp Gly Arg Asp Gly Thr Lys Gly Glu Lys Gly Glu Pro Gly Gln 50 55 60

Gly Leu Arg Gly Leu Gln Gly Pro Pro Gly Lys Leu Gly Pro Pro Gly 65 70 75 80

Asn Pro Gly Pro Ser Gly Ser Pro Gly Pro Lys Gly Gln Lys Gly Asp 85 90 95

Pro Gly Lys Ser Pro Asp Gly Asp Ser Ser Leu Ala Ala Ser Glu Arg
100 105 110

Lys Ala Leu Gln Thr Glu Met Ala Arg Ile Lys Lys Trp Leu Thr Phe 115 120 125

Ser Leu Gly Lys Gln Val Gly Asn Lys Phe Phe Leu Thr Asn Gly Glu 130 135 140

Ile Met Thr Phe Glu Lys Val Lys Ala Leu Cys Val Lys Phe Gln Ala
145 150 155 160

Ser Val Ala Thr Pro Arg Asn Ala Ala Glu Asn Gly Ala Ile Gln Asn 165 170 175

Leu Ile Lys Glu Glu Ala Phe Leu Gly Ile Thr Asp Glu Lys Thr Glu 180 185 190

Gly Gln Phe Val Asp Leu Thr Gly Asn Arg Leu Thr Tyr Thr Asn Trp
195 200 205

Asn Glu Gly Glu Pro Asn Asn Ala Gly Ser Asp Glu Asp Cys Val Leu 210 215 220

Leu Leu Lys Asn Gly Gln Trp Asn Asp Val Pro Cys Ser Thr Ser His 225 230 235 Leu Ala Val Cys Glu Phe Pro Ile 245 <210> 108 <211> 329 <212> PRT <213> Homo sapiens <400> 108 Met Trp Cys Ile Val Leu Phe Ser Leu Leu Ala Trp Val Tyr Ala Glu 5 Pro Thr Met Tyr Gly Glu Ile Leu Ser Pro Asn Tyr Pro Gln Ala Tyr 20 Pro Ser Glu Val Glu Lys Ser Trp Asp Ile Glu Val Pro Glu Gly Tyr 40 Gly Ile His Leu Tyr Phe Thr His Leu Asp Ile Glu Leu Ser Glu Asn Cys Ala Tyr Asp Ser Val Gln Ile Ile Ser Gly Asp Thr Glu Glu Gly Arg Leu Cys Gly Gln Arg Ser Ser Asn Asn Pro His Ser Pro Ile Val Glu Glu Phe Gln Val Pro Tyr Asn Lys Leu Gln Val Ile Phe Lys Ser 100 105 Asp Phe Ser Asn Glu Glu Arg Phe Thr Gly Phe Ala Ala Tyr Tyr Val 115 120 Ala Thr Asp Ile Asn Glu Cys Thr Asp Phe Val Asp Val Pro Cys Ser

155

His Phe Cys Asn Asn Phe Ile Gly Gly Tyr Phe Cys Ser Cys Pro Pro

Glu Tyr Phe Leu His Asp Asp Met Lys Asn Cys Gly Val Asn Cys Ser

150

Gly Asp Val Phe Thr Ala Leu Ile Gly Glu Ile Ala Ser Pro Asn Tyr 180 185 190

Pro Lys Pro Tyr Pro Glu Asn Ser Arg Cys Glu Tyr Gln Ile Arg Leu 195 200 205

Glu Lys Gly Phe Gln Val Val Thr Leu Arg Arg Glu Asp Phe Asp 210 215 220

Val Glu Ala Ala Asp Ser Ala Gly Asn Cys Leu Asp Ser Leu Val Phe 225 230 235 240

Val Ala Gly Asp Arg Gln Phe Gly Pro Tyr Cys Gly His Gly Phe Pro 245 250 255

Gly Pro Leu Asn Ile Glu Thr Lys Ser Asn Ala Leu Asp Ile Ile Phe 260 265 270

Gln Thr Asp Leu Thr Gly Gln Lys Lys Gly Trp Lys Leu Arg Tyr His 275 280 285

Gly Asp Pro Met Pro Cys Pro Lys Glu Asp Thr Pro Asn Ser Val Trp
290 295 300

Glu Pro Ala Lys Ala Lys Tyr Val Phe Arg Asp Val Val Gln Ile Thr 305 310 315 320

Cys Leu Asp Gly Phe Glu Val Val Glu 325

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<211> 109

<212> PRT

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<400> 109

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Ser Tyr Gly Pro Tyr Glu Phe Ile Met Gln His Asp Cys Asn Leu Val 20 25 30

Leu Tyr Glu Ser Gly Asn Pro Thr Trp Ala Ser Asn Thr Gly Gly Leu 40 Ala Leu His Cys Arg Ala Thr Leu Gln Thr Asp Gly Asn Leu Val Val Gln Asn Ser Ala Asn Arg Ile Ile Trp Gln Ser Asn Thr Gly Thr Gly Thr Asn Gly Asp Tyr Leu Leu Val Leu Gln Lys Asn Gly Asn Val Val 85 90 Ile Val Gly Pro Pro Ile Trp Ala Thr Gly Thr Gly Arq 100 <210> 110 <211> 248 <212> PRT <213> Homo sapiens <400> 110 Met Ser Leu Phe Pro Ser Leu Pro Leu Leu Leu Ser Met Val Ala 10 Ala Ser Tyr Ser Glu Thr Val Thr Cys Glu Asp Ala Gln Lys Thr Cys 25 Pro Ala Val Ile Ala Cys Ser Ser Pro Gly Ile Asn Gly Phe Pro Gly Lys Asp Gly Cys Asp Gly Thr Lys Gly Glu Lys Gly Glu Pro Gly Gln 55 Gly Leu Arg Gly Leu Gln Gly Pro Pro Gly Lys Leu Gly Pro Pro Gly Asn Pro Gly Pro Ser Gly Ser Pro Gly Pro Lys Gly Gln Lys Gly Asp Pro Gly Lys Ser Pro Asp Gly Asp Ser Ser Leu Ala Ala Ser Glu Arq 100 105 Lys Ala Leu Gln Thr Glu Met Ala Arg Ile Lys Lys Trp Leu Thr Phe 120 125

Ile Met Thr Phe Glu Lys Val Lys Ala Leu Cys Val Lys Phe Gln Ala 145 150 155 Ser Val Ala Thr Pro Arg Asn Ala Ala Glu Asn Gly Ala Ile Gln Asn Leu Ile Lys Glu Glu Ala Phe Leu Gly Ile Thr Asp Glu Lys Thr Glu 185 Gly Gln Phe Val Asp Leu Thr Gly Asn Arg Leu Thr Tyr Thr Asn Trp 200 Asn Glu Gly Glu Pro Asn Asn Ala Gly Ser Asp Glu Asp Cys Val Leu Leu Leu Lys Asn Gly Gln Trp Asn Asp Val Pro Cys Ser Thr Ser His Leu Ala Val Cys Glu Phe Pro Ile <210> 111 <211> 248 <212> PRT <213> Homo sapiens <400> 111 Met Ser Leu Phe Pro Ser Leu Pro Leu Leu Leu Ser Met Val Ala 5 10 Ala Ser Tyr Ser Glu Thr Val Thr Cys Glu Asp Ala Gln Lys Thr Cys 20 25 Pro Ala Val Ile Ala Cys Ser Ser Pro Gly Ile Asn Gly Phe Pro Gly 35 Lys Asp Gly Arg Asp Gly Thr Lys Gly Glu Lys Gly Glu Pro Gly Gln 55 50 Gly Leu Arg Gly Leu Gln Gly Pro Pro Gly Lys Leu Gly Pro Pro Gly 70 75

Ser Leu Gly Lys Gln Val Gly Asn Lys Phe Phe Leu Thr Asn Gly Glu

140

135

130

| Asn | Pro | Gly | Pro | Ser 85 | Gly | Ser | Pro | Gly | Pro 90 | Lys | Gly | Gln | Lys | Gly 95 | Asp |
|--------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Pro | Gly | Lys | Ser 100 | Pro | Asp | Gly | Asp | Ser 105 | Ser | Leu | Ala | Ala | Ser 110 | Glu | Arg |
| Lys | Ala | Leu 115 | Gln | Thr | Glu | Met | Ala 120 | Arg | Ile | Lys | Lys | Trp 125 | Leu | Thr | Phe |
| Ser | Leu 130 | Gly | Lys | Gln | Val | Gly 135 | Asn | Lys | Phe | Phe | Leu 140 | Thr | Asn | Gly | Glu |
| Ile 145 | Met | Thr | Phe | Glu | Lys 150 | Val | Lys | Ala | Leu | Cys 155 | Val | Lys | Phe | Gln | Ala 160 |
| Ser | Val | Ala | Thr | Pro 165 | Arg | Asn | Ala | Ala | Glu 170 | Asn | Gly | Ala | Ile | Gln 175 | Asn |
| Leu | Ile | Lys | Glu 180 | Glu | Ala | Phe | Leu | Gly 185 | Ile | Thr | Asp | Glu | Lys 190 | Thr | Glu |
| Gly | Gln | Phe 195 | Val | Asp | Leu | Thr | Gly 200 | Asn | Arg | Leu | Thr | Tyr 205 | Thr | Asn | Trp |
| Asn | Glu 210 | Gly | Glu | Pro | Asn | Asn 215 | Ala | Gly | Ser | Asp | Glu 220 | Asp | Cys | Val | Leu |
| Leu 225 | Leu | Lys | Asn | Gly | Gln 230 | Trp | Asn | Asp | Val | Pro 235 | Cys | Ser | Thr | Ser | His 240 |
| Leu | Ala | Val | Cys | Glu 245 | Phe | Pro | Ile | | | | | | | | |
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| <211 <212 | | 248 PRT | | | | | | | | | | | | | |
| <213 | | omo | sapi | .ens | | | | | | | | | | | |
| <400 | | 112 | | | | | | | _ | _ | _ | | • | | |
| Met 1 | Ser | Leu | Phe | Pro 5 | Ser | Leu | Pro | Leu | Leu 10 | Leu | Leu | ser | Met | Val 15 | Ala |

Ala Ser Tyr Ser Glu Thr Val Thr Cys Glu Asp Ala Gln Lys Thr Cys

Pro Ala Val Ile Ala Cys Ser Ser Pro Gly Ile Asn Gly Phe Pro Gly 35 40 45

Lys Asp Gly Arg Asp Gly Thr Lys Gly Glu Lys Gly Glu Pro Gly Gln 50 55 60

Gly Leu Arg Gly Leu Gln Gly Pro Pro Gly Lys Leu Gly Pro Pro Gly 65 70 75 80

Asn Pro Gly Pro Ser Gly Ser Pro Gly Pro Lys Gly Gln Lys Gly Asp . 85 90 95

Pro Gly Lys Ser Pro Asp Gly Asp Ser Ser Leu Ala Ala Ser Glu Arg 100 105 110

Lys Ala Leu Gln Thr Glu Met Ala Arg Ile Lys Lys Trp Leu Thr Phe 115 120 125

Ser Leu Gly Lys Gln Val Gly Asn Lys Phe Phe Leu Thr Asn Gly Glu 130 135 140

Ile Met Thr Phe Glu Lys Val Lys Ala Leu Cys Val Lys Phe Gln Ala 145 150 155 160

Ser Val Ala Thr Pro Arg Asn Ala Ala Glu Asn Gly Ala Ile Gln Asn 165 170 175

Leu Ile Lys Glu Glu Ala Phe Leu Gly Ile Thr Asp Glu Lys Thr Glu 180 185 190

Gly Gln Phe Val Asp Leu Thr Gly Asn Arg Leu Thr Tyr Thr Asn Trp 195 200 205

Asn Glu Gly Glu Pro Asn Asn Ala Gly Ser Asp Glu Asp Cys Val Leu 210 215 220 ,

Leu Leu Lys Asn Gly Gln Trp Asn Asp Val Pro Cys Ser Thr Ser His 225 230 235 240

Leu Ala Val Cys Glu Phe Pro Ile 245

| < < | 210 210 210 210 | 1> 2> | 113 248 PRT Homo | sap | iens | í | | | | | | | | | | |
|--------|--------------------------|------------|---------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| < | 400 | 0> | 113 | | | | | | | | | | | | | |
| M 1 | | Ser | Leu | Phe | Pro 5 | Ser | Leu | Pro | Leu | Leu 10 | Leu | Leu | Ser | Met | Val | . Ala |
| A | la | Ser | Tyr | Ser 20 | Glu | Thr | Val | Thr | Cys 25 | Glu | Asp | Ala | . Gln | Lys | Thr | Cys |
| P | ro | Ala | Val 35 | Ile | Ala | Cys | Ser | Ser 40 | Pro | Gly | ·Ile | Asn | Gly 45 | Phe | Pro | Gly |
| L | ys | Asp 50 | Gly | Arg | Asp | Asp | Thr 55 | Lys | Gly | Glu | Lys | Gly 60 | Glu | Pro | Gly | Gln |
| G: | | Leu | Arg | Gly | Leu | Gln 70 | Gly | Pro | Pro | Gly | Lys 75 | Leu | Gly | Pro | Pro | Gly 80 |
| A | sn | Pro | Gly | Pro | Ser 85 | Gly | Ser | Pro | Gly | Pro 90 | Lys | Gly | Gln | Lys | Gly 95 | Asp |
| P | ro | Gly | Lys | Ser 100 | Pro | Asp | Gly | Asp | Ser 105 | Ser | Leu | Ala | Ala | Ser 110 | Glu | Arg |
| L | ys | Ala | Leu 115 | Gln | Thr | Glu | Met | Ala 120 | Arg | Ile | Lys | Lys | Trp 125 | Leu | Thr | Phe |
| Se | er | Leu 130 | Gly | Lys | Gln | Val | Gly 135 | Asn | Lys | Phe | Phe | Leu 140 | Thr | Asn | Gly | Glu |
| | le 15 | Met | Thr | Phe | Glu | Lys 150 | Val | Lys | Ala | Leu | Cys 155 | Val | Lys | Phe | Gln | Ala 160 |
| Se | er | Val | Ala | Thr | Pro 165 | Arg | Asn | Ala | Ala | Glu 170 | Asn | Gly | Ala | Ile | Gln 175 | Asn |
| L€ | eu | Ile | Lys | Glu 180 | Glu | Ala | Phe | Leu | Gly 185 | Ile | Thr | Asp | Glu | Lys 190 | Thr | Glu |
| Gl | Lу | Gln | Phe 195 | Val | Asp | Leu | Thr | Gly 200 | Asn | Arg | Leu | Thr | Tyr 205 | Thr | Asn | Trp |

Asn Glu Gly Glu Pro Asn Asn Ala Gly Ser Asp Glu Asp Cys Val Leu 210 215 Leu Leu Lys Asn Gly Gln Trp Asn Asp Val Pro Cys Ser Thr Ser His 230 235 Leu Ala Val Cys Glu Phe Pro Ile 245 <210> 114 <211> 248 <212> PRT <213> Homo sapiens <400> 114 Met Ser Leu Phe Pro Ser Leu Pro Leu Leu Leu Ser Met Val Ala 5 10 Ala Ser Tyr Ser Glu Thr Val Thr Cys Glu Asp Ala Gln Lys Thr Cys 25 Pro Ala Val Ile Ala Cys Ser Ser Pro Gly Ile Asn Gly Phe Pro Gly Lys Asp Gly Arg Asp Gly Thr Lys Glu Glu Lys Gly Glu Pro Gly Gln 55 Gly Leu Arg Gly Leu Gln Gly Pro Pro Gly Lys Leu Gly Pro Pro Gly Asn Pro Gly Pro Ser Gly Ser Pro Gly Pro Lys Gly Gln Lys Gly Asp 90 Pro Gly Lys Ser Pro Asp Gly Asp Ser Ser Leu Ala Ala Ser Glu Arg 100 105 Lys Ala Leu Gln Thr Glu Met Ala Arg Ile Lys Lys Trp Leu Thr Phe 120 Ser Leu Gly Lys Gln Val Gly Asn Lys Phe Phe Leu Thr Asn Gly Glu

135

Ile Met Thr Phe Glu Lys Val Lys Ala Leu Cys Val Lys Phe Gln Ala

130

Ser Val Ala Thr Pro Arg Asn Ala Ala Glu Asn Gly Ala Ile Gln Asn 165 170 175

Leu Ile Lys Glu Glu Ala Phe Leu Gly Ile Thr Asp Glu Lys Thr Glu 180 185 190

Gly Gln Phe Val Asp Leu Thr Gly Asn Arg Leu Thr Tyr Thr Asn Trp
195 200 205

Asn Glu Gly Glu Pro Asn Asn Ala Gly Ser Asp Glu Asp Cys Val Leu 210 215 220

Leu Leu Lys Asn Gly Gln Trp Asn Asp Val Pro Cys Ser Thr Ser His 225 230 235 240

Leu Ala Val Cys Glu Phe Pro Ile

<210> 115

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<212> PRT

<213> Homo sapiens

<400> 115

Met Ser Leu Phe Pro Ser Leu Pro Leu Leu Leu Ser Met Val Ala 1 5 10 10 15

Ala Ser Tyr Ser Glu Thr Val Thr Cys Glu Asp Ala Gln Lys Thr Cys
20 25 30

Pro Ala Val Ile Ala Cys Ser Ser Pro Gly Ile Asn Gly Phe Pro Gly 35 40 45

Lys Asp Gly Arg Asp Gly Thr Lys Gly Glu Lys Gly Glu Pro Gly Gln 50 55 60

Gly Leu Arg Gly Leu Gln Gly Pro Pro Gly Lys Leu Gly Pro Pro Gly 65 70 75 80

Asn Pro Gly Pro Ser Gly Ser Pro Gly Pro Lys Gly Gln Lys Gly Asp
85 90 95

| Pro | Gly | Lys | Ser 100 | Pro | Asp | Gly | Asp | Ser 105 | | Leu | Ala | Ala | Ser 110 | | Arg |
|------------------------------|--------------|---------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Lys | Ala | Leu 115 | Gln | Thr | Glu | Met | Ala 120 | Arg | Ile | Lys | Lys | Trp 125 | | Thr | Phe |
| Ser | Leu 130 | Gly | Lys | Gln | Val | Gly 135 | Asn | Lys | Phe | Phe | Leu 140 | | Asn | Gly | Glu |
| Ile 145 | Met | Thr | Phe | Glu | Lys 150 | Val | Lys | Ala | Leu | Cys 155 | Val | Lys | Phe | Gln | Ala 160 |
| Ser | Val | Ala | Thr | Pro 165 | Arg | Asn | Ala | Ala | Glu 170 | Asn | Gly | Ala | Ile | Gln 175 | Asn |
| Leu | Ile | Lys | Glu 180 | Glu | Ala | Phe | Leu | Gly 185 | | Thr | Asp | Glu | Lys 190 | Thr | Glu |
| Gly | Gln | Phe 195 | Val | Asp | Leu | Thr | Gly 200 | Asn | Arg | Leu | Thr | Tyr 205 | Thr | Asn | Trp |
| Asn | Glu 210 | Gly | Glu | Pro | Asn | Asn 215 | Ala | Gly | Ser | Asp | Glu 220 | Asp | Cys | Val | Leu |
| Leu 225 | Leu | Lys | Asn | Gly | Gln 230 | Trp | Asn | Asp | Val | Pro 235 | Cys | Ser | Thr | Ser | His 240 |
| Leu | Ala | Val | Cys | Glu 245 | Phe | Pro | Ile | | | | | | | | |
| <210 <211 <212 <213 | .> 2 !> F | .16 :48 PRT Iomo | sapi | .ens | | | | | | | | | | | |
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| Met 1 | Ser | Leu | Phe | Pro 5 | Ser | Leu | Pro | Leu | Leu 10 | Leu | Leu | Ser | Met | Val 15 | Ala |
| Ala | Ser | Tyr | Ser 20 | Glu | Thr | Val | Thr | Cys 25 | Glu | Asp | Ala | Gln | Lys 30 | Thr | Cys |
| Pro | Ala | Val 35 | Ile | Ala | Cys | Ser | Ser 40 | Pro | Gly | Ile | Asn | Gly 45 | Phe | Pro | Gly |

Lys Asp Gly Arg Asp Gly Thr Lys Gly Glu Lys Gly Glu Pro Gly Gln 50 55 60 Gly Leu Arg Gly Leu Gln Gly Pro Pro Gly Lys Leu Gly Pro Pro Gly 80 70 75 Asn Pro Gly Pro Ser Gly Ser Pro Gly Pro Lys Gly Gln Lys Gly Asp Pro Gly Lys Ser Pro Asp Gly Asp Ser Ser Leu Ala Ala Ser Glu Arg 100 105 Lys Ala Leu Gln Thr Glu Met Ala Arg Ile Lys Lys Trp Leu Thr Phe 120 Ser Leu Gly Lys Gln Val Gly Asn Lys Phe Phe Leu Thr Asn Gly Glu Ile Met Thr Phe Glu Lys Val Lys Ala Leu Cys Val Lys Phe Gln Ala Ser Val Ala Thr Pro Arg Asn Ala Ala Glu Asn Gly Ala Ile Gln Asn Leu Ile Lys Glu Glu Ala Phe Leu Gly Ile Thr Asp Glu Lys Thr Glu 185 180 Gly Gln Phe Val Asp Leu Thr Gly Asn Arg Leu Thr Tyr Thr Asn Trp 200 Asn Glu Gly Glu Pro Asn Asn Ala Gly Ser Asp Glu Asp Cys Val Leu 215 220 Leu Leu Lys Asn Gly Gln Trp Asn Asp Val Pro Cys Ser Thr Ser His 230 235 Leu Ala Val Cys Glu Phe Pro Ile

<210> 117 <211> 652

<212> PRT

<213> Homo sapiens

245

<400> 117

Met Ala Thr Ser Met Gly Leu Leu Leu Leu Leu Leu Leu Leu Leu Thr 1 5 10 15

Gln Pro Gly Ala Gly Thr Gly Ala Asp Thr Glu Ala Val Val Cys Val 20 25 30

Gly Thr Ala Cys Tyr Thr Ala His Ser Gly Lys Leu Ser Ala Ala Glu 35 40 45

Ala Gln Asn His Cys Asn Gln Asn Gly Gly Asn Leu Ala Thr Val Lys 50 55 60

Ser Lys Glu Glu Ala Gln His Val Gln Arg Val Leu Ala Gln Leu Leu 65 70 75 80

Arg Arg Glu Ala Ala Leu Thr Ala Arg Met Ser Lys Phe Trp Ile Gly
85 90 95

Leu Gln Arg Glu Lys Gly Lys Cys Leu Asp Pro Ser Leu Pro Leu Lys
100 105 110

Gly Phe Ser Trp Val Gly Gly Glu Asp Thr Pro Tyr Ser Asn Trp 115 120 125

His Lys Glu Leu Arg Asn Ser Cys Ile Ser Lys Arg Cys Val Ser Leu 130 135 140

Leu Leu Asp Leu Ser Gln Pro Leu Leu Pro Asn Arg Leu Pro Lys Trp 145 150 155 160

Ser Glu Gly Pro Cys Gly Ser Pro Gly Ser Pro Gly Ser Asn Ile Glu 165 170 175

Gly Phe Val Cys Lys Phe Ser Phe Lys Gly Met Cys Arg Pro Leu Ala 180 185 190

Leu Gly Gly Pro Gly Gln Val Thr Tyr Thr Thr Pro Phe Gln Thr Thr 195 200 205

Ser Ser Ser Leu Glu Ala Val Pro Phe Ala Ser Ala Ala Asn Val Ala 210 215 220

| Cys 225 | _ | Glu | Gly | Asp | Lys 230 | Asp | Glu | Thr | Gln | Ser 235 | | Tyr | Phe | Leu | Cys 240 |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Lys | Glu | Lys | Ala | Pro 245 | Asp | Val | Phe | Asp | Trp 250 | Gly | Ser | Ser | Gly | Pro 255 | Leu |
| Cys | Val | Ser | Pro 260 | | Tyr | Gly | Cys | Asn 265 | | Asn | Asn | Gly | Gly 270 | Cys | His |
| Gln | Asp | Cys 275 | Phe | Glu | Gly | Gly | Asp 280 | Gly | Ser | Phe | Leu | Cys 285 | Gly | Cys | Arg |
| Pro | Gly 290 | Phe | Arg | Leu | Leu | Asp 295 | Asp | Leu | Val | Thr | Cys 300 | Ala | Ser | Arg | Asn |
| Pro 305 | Cys | Ser | Ser | Ser | Pro 310 | Cys | Arg | Gly | Gly | Ala 315 | Thr | Cys | Val | Leu | Gly 320 |
| Pro | His | Gly | Lys | Asn 325 | Tyr | Thr | Cys | Arg | Cys 330 | Pro | Gln | Gly | Tyr | Gln 335 | Leu |
| Asp | Ser | Ser | Gln 340 | Leu | Asp | Cys | Val | Asp 345 | Val | Asp | Glu | Cys | Gln 350 | Asp | Ser |
| Pro | Cys | Ala 355 | Gln | Glu | Cys | Val | Asn 360 | Thr | Pro | Gly | Gly | Phe 365 | Arg | Cys | Glu |
| Cys | Trp 370 | Val | Gly | Tyr | Glu | Pro 375 | Gly | Gly | Pro | Gly | Glu 380 | Gly | Ala | Cys | Gln |
| Asp 385 | Val | Asp | Glu | Cys | Ala 390 | Leu | Gly | Arg | Ser | Pro 395 | Cys | Ala | Gln | Gly | Cys 400 |
| Thr | Asn | Thr | Asp | Gly 405 | Ser | Phe | His | Cys | Ser 410 | Cys | Glu | Glu | Gly | Tyr 415 | Val |
| Leu | Ala | Gly | Glu 420 | Asp | Gly | Thr | Gln | Cys 425 | Gln | Asp | Val | Asp | Glu 430 | Cys | Val |
| Gly | Pro | Gly 435 | Gly | Pro | Leu | Cys | Asp 440 | Ser | Leu | Cys | Phe | Asn 445 | Thr | Gln | Gly |
| Ser | Phe 450 | His | Cys | Gly | Cys | Leu 455 | Pro | Gly | Trp | Val | Leu 460 | Ala | Pro | Asn | Gly |

| Val 465 | Ser | Cys | Thr | Met | Gly 470 | Pro | Val | Ser | Leu | Gly 475 | Pro | Pro | Ser | Gly | Pro 480 |
|------------------------------|--------------|---------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Pro | Asp | Glu | Glu | Asp 485 | Lys | Gly | Glu | Lys | Glu 490 | Gly | Ser | Thr | Val | Pro 495 | Arg |
| Ala | Ala | Thr | Ala 500 | Ser | Pro | Thr | Arg | Gly 505 | Pro | Glu | Gly | Thr | Pro 510 | Lys | Ala |
| Thr | Pro | Thr 515 | Thr | Ser | Arg | Pro | Ser 520 | Leu | Ser | Ser | Asp | Ala 525 | Pro | Ile | Thr |
| Ser | Ala 530 | Pro | Leu | Lys | Met | Leu 535 | Ala | Pro | Ser | Gly | Ser 540 | Ser | Gly | Val | Trp |
| Arg 545 | Glu | Pro | Ser | Ile | His 550 | His | Ala | Thr | Ala | Ala 555 | Ser | Gly | Pro | Gln | Glu 560 |
| Pro | Ala | Gly | Gly | Asp 565 | Ser | Ser | Val | Ala | Thr 570 | Gln | Asn | Asn | Asp | Gly 575 | Thr |
| Asp | Gly | Gln | Lys 580 | Leu | Leu | Leu | Phe | Tyr 585 | Ile | Leu | Gly | Thr | Val 590 | Val | Ala |
| Ile | Leu | Leu 595 | Leu | Leu | Ala | Leu | Ala 600 | Leu | Gly | Leu | Leu | Val 605 | Tyr | Arg | Lys |
| Arg | Arg 610 | Ala | Lys | Arg | Glu | Glu 615 | Lys | Lys | Glu | Lys | Lys 620 | Pro | Gln | Asn | Ala |
| Ala 625 | Asp | Ser | Tyr | Ser | Trp 630 | Val | Pro | Glu | Arg | Ala 635 | Glu | Ser | Arg | Ala | Met 640 |
| Glu | Asn | Gln | Tyr | Ser 645 | Pro | Thr | Pro | Gly | Thr 650 | Asp | Cys | | | | |
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| <400 |)> 1 | 118 | | | | | | | | | | | | | |

Met Asp Leu Leu Trp Ile Leu Pro Ser Leu Trp Leu Leu Leu Gly

| Gly | Pro | Ala | Cys | Leu | Lys | Thr | Gln | Glu | His | Pro | Ser | Cys | Pro | Gly | Pro |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | 20 | | | | | 25 | | | | | 30 | | |

- Arg Glu Leu Glu Ala Ser Lys Val Val Leu Leu Pro Ser Cys Pro Gly 35 40 45
- Ala Pro Gly Ser Pro Gly Glu Lys Gly Ala Pro Gly Pro Gln Gly Pro 50 55 60
- Pro Gly Pro Pro Gly Lys Met Gly Pro Lys Gly Glu Pro Gly Asp Pro 65 70 75 80
- Val Asn Leu Leu Arg Cys Gln Glu Gly Pro Arg Asn Cys Arg Glu Leu 85 90 95
- Leu Ser Gln Gly Ala Thr Leu Ser Gly Trp Tyr His Leu Cys Leu Pro 100 105 110
- Glu Gly Arg Ala Leu Pro Val Phe Cys Asp Met Asp Thr Glu Gly Gly 115 120 125
- Gly Trp Leu Val Phe Gln Arg Arg Gln Asp Gly Ser Val Asp Phe Phe 130 135 140
- Arg Ser Trp Ser Ser Tyr Arg Ala Gly Phe Gly Asn Gln Glu Ser Glu 145 150 155 160
- Phe Trp Leu Gly Asn Glu Asn Leu His Gln Leu Thr Leu Gln Gly Asn 165 170 175
- Trp Glu Leu Arg Val Glu Leu Glu Asp Phe Asn Gly Asn Arg Thr Phe
 180 185 190
- Ala His Tyr Ala Thr Phe Arg Leu Leu Gly Glu Val Asp His Tyr Gln
 195 200 205
- Leu Ala Leu Gly Lys Phe Ser Glu Gly Thr Ala Gly Asp Ser Leu Ser 210 215 220
- Leu His Ser Gly Arg Pro Phe Thr Thr Tyr Asp Ala Asp His Asp Ser 225 230 235 240

Ser Asn Ser Asn Cys Ala Val Ile Val His Gly Ala Trp Trp Tyr Ala 250 Ser Cys Tyr Arg Ser Asn Leu Asn Gly Arg Tyr Ala Val Ser Asp Ala Ala Ala His Lys Tyr Gly Ile Asp Trp Ala Ser Gly Arg Gly Val Gly His Pro Tyr Arg Arg Val Arg Met Met Leu Arg 295 <210> 119 <211> 169 <212> PRT <213> Homo sapiens <400> 119 Met Gly Pro Ala Leu Leu Ala Leu Ser Phe Leu Trp Thr Met Ala Leu Thr Glu Asp Thr Cys Pro Ala Met Leu Glu Tyr Val Ala Leu Asn Ser 20 Glu Pro Gly Met Ala Ser Lys Asn Pro Ser Arg Arg His Gly Leu Ser 35 Leu Leu Val Val Asp Gln Gly Pro Gly Ala Arg Gly Val Arg Thr Asp 50 55 Gln Gly Pro Ser Gly Ala Asp Pro Gly Ser Leu Glu Leu His Gly Glu 70 Cys Pro Ile Phe Pro Ser Glu Gln Val Ile Leu Thr His His Asn Asn 85 90 Tyr Pro Phe Ser Thr Glu Asp Gln Asp Asn Asp Arg Asp Ala Glu Asn 100 105 Cys Ala Val His Tyr Gln Gly Ala Trp Trp Tyr Ala Ser Cys His Leu 115 Ser His Leu Asn Gly Val Tyr Leu Gly Gly Ala Arg Asp Ser Phe Thr 130 135

Asn Gly Ile Asn Trp Lys Ser Gly Lys Gly Asn Asn Tyr Ser Tyr Lys 150 155 Val Ser Glu Met Lys Val Arg Pro Thr 165 <210> 120 <211> 326 <212> PRT <213> Homo sapiens <400> 120 Met Glu Leu Ser Gly Ala Thr Met Ala Arg Gly Leu Ala Val Leu Leu Val Leu Phe Leu His Ile Lys Asn Leu Pro Ala Gln Ala Ala Asp Thr Cys Pro Glu Val Lys Val Val Gly Leu Glu Gly Ser Asp Lys Leu Thr Ile Leu Arg Gly Cys Pro Gly Leu Pro Gly Ala Pro Gly Pro Lys Gly Glu Ala Gly Val Ile Gly Glu Arg Gly Glu Arg Gly Leu Pro Gly Ala Pro Gly Lys Ala Gly Pro Val Gly Pro Lys Gly Asp Arg Gly Glu Lys Gly Met Arg Gly Glu Lys Gly Asp Ala Gly Gln Ser Gln Ser Cys Ala Thr Gly Pro Arg Asn Cys Lys Asp Leu Leu Asp Arg Gly Tyr Phe Leu Ser Gly Trp His Thr Ile Tyr Leu Pro Asp Cys Arg Pro Leu Thr Val 130 135

Leu Cys Asp Met Asp Thr Asp Gly Gly Gly Trp Thr Val Phe Gln Arg

Arg Met Asp Gly Ser Val Asp Phe Tyr Arg Asp Trp Ala Ala Tyr Lys

150

155

Gln Gly Phe Gly Ser Gln Leu Gly Glu Phe Trp Leu Gly Asn Asp Asn 180 185

Ile His Ala Leu Thr Ala Gln Gly Ser Ser Glu Leu Arg Val Asp Leu 200

Val Asp Phe Glu Gly Asn His Gln Phe Ala Lys Tyr Lys Ser Phe Lys 210 215

Val Ala Asp Glu Ala Glu Lys Tyr Lys Leu Val Leu Gly Ala Phe Val 230 235

Gly Gly Ser Ala Gly Asn Ser Leu Thr Gly His Asn Asn Asn Phe Phe 250

Ser Thr Lys Asp Gln Asp Asn Asp Val Ser Ser Asn Cys Ala Glu

Lys Phe Gln Gly Ala Trp Trp Tyr Ala Asp Cys His Ala Ser Asn Leu 280

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Asn Trp Ser Ala Ala Lys Gly Tyr Lys Tyr Ser Tyr Lys Val Ser Glu 315 320 310

Met Lys Val Arg Pro Ala 325

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<213> Homo sapiens

<400> 121

Met Asp Leu Trp Ile Leu Pro Ser Leu Trp Leu Leu Leu Gly 5

Gly Pro Ala Cys Leu Lys Thr Gln Glu His Pro Ser Cys Pro Gly Pro 20

| Arg | Glu | Leu 35 | Glu | Ala | Ser | Lys | Val 40 | Val | Leu | Leu | Pro | Ser 45 | Cys | Pro | Gly |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Ala | Pro 50 | Gly | Ser | Pro | Gly | Glu 55 | Lys | Gly | Ala | Pro | Gly 60 | Pro | Gln | Gly | Pro |
| Pro 65 | Gly | Pro | Pro | Gly | Lys 70 | Met | Gly | Pro | Lys | Gly 75 | Glu | Pro | Gly | Asp | Pro 80 |
| Val | Asn | Leu | Leu | Arg 85 | Cys | Gln | Glu | Gly | Pro 90 | Arg | Asn | Cys | Arg | Glu 95 | Ĺeu |
| Leu | Ser | Gln | Gly 100 | Ala | Thr | Leu | Ser | Gly 105 | Trp | Tyr | His | Leu | Cys 110 | Leu | Pro |
| Glu | Gly | Arg 115 | Ala | Leu | Pro | Val | Phe 120 | Cys | Asp | Met | Asp | Thr 125 | Glu | Gly | Gly |
| Gly | Trp 130 | Leu | Val | Phe | Gln | Arg 135 | Arg | Gln | Asp | Gly | Ser 140 | Val | Asp | Phe | Phe |
| Arg 145 | Ser | Trp | Ser | Ser | Tyr 150 | Arg | Ala | Gly | Phe | Gly 155 | Asn | Gln | Glu | Ser | Glu 160 |
| Phe | Trp | Leu | Gly | Asn 165 | Glu | Asn | Leu | His | Gln 170 | Leu | Thr | Leu | Gln | Gly 175 | Asn |
| Trp | Glu | Leu | Arg 180 | Val | Glu | Leu | Glu | Asp 185 | Phe | Asn | Gly | Asn | Arg 190 | Thr | Phe |
| Ala | His | Tyr 195 | Ala | Thr | Phe | Arg | Leu 200 | Leu | Gly | Glu | Val | Asp 205 | His | Tyr | Gln |
| Leu | Ala 210 | Leu | Gly | Lys | Phe | Ser 215 | Glu | Gly | Thr | Ala | Gly 220 | Asp | Ser | Leu | Ser |
| Leu 225 | His | Ser | Gly | Arg | Pro 230 | Phe | Thr | Thr | Tyr | Asp 235 | Ala | Asp | His | Asp | Ser 240 |
| Ser | Asn | Ser | Asn | Cys 245 | Ala | Val | Ile | Val | His 250 | Gly | Ala | Trp | Trp | Tyr 255 | Ala |
| Ser | Cys | Tyr | Arg 260 | Ser | Asn | Leu | Asn | Gly 265 | Arg | Tyr | Ala | Val | Ser 270 | Asp | Ala |

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His Pro Tyr Arg Arg Val Arg Met Met Leu Arg 290 295

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<213> Mus musculus

<400> 122

Met Ala Leu Gly Ser Ala Ala Leu Phe Val Leu Thr Leu Thr Val His

1 10 15

Ala Ala Gly Thr Cys Pro Glu Leu Lys Val Leu Asp Leu Glu Gly Tyr
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Lys Gln Leu Thr Ile Leu Gln Gly Cys Pro Gly Leu Pro Gly Ala Ala 35 40 45

Gly Pro Lys Gly Glu Ala Gly Ala Lys Gly Asp Arg Gly Glu Ser Gly 50 60

Leu Pro Gly Ile Pro Gly Lys Glu Gly Pro Thr Gly Pro Lys Gly Asn 65 70 75 80

Gln Gly Glu Lys Gly Ile Arg Gly Glu Lys Gly Asp Ser Gly Pro Ser 85 90 95

Gln Ser Cys Ala Thr Gly Pro Arg Thr Cys Lys Glu Leu Leu Thr Gln
100 105 110

Gly His Phe Leu Thr Gly Trp Tyr Thr Ile Tyr Leu Pro Asp Cys Arg 115 120 125

Pro Leu Thr Val Leu Cys Asp Met Asp Thr Asp Gly Gly Gly Trp Thr 130 135 140

Val Phe Gln Arg Arg Leu Asp Gly Ser Val Asp Phe Phe Arg Asp Trp 145 150 155 160

Thr Ser Tyr Lys Arg Gly Phe Gly Ser Gln Leu Gly Glu Phe Trp Leu

Gly Asn Asp Asn Ile His Ala Leu Thr Thr Gln Gly Thr Ser Glu Leu 180 185 190

Arg Val Asp Leu Ser Asp Phe Glu Gly Lys His Asp Phe Ala Lys Tyr 195 200 205

Ser Ser Phe Gln Ile Gln Gly Glu Ala Glu Lys Tyr Lys Leu Ile Leu 210 215 220

Gly Asn Phe Leu Gly Gly Gly Ala Gly Asp Ser Leu Thr Pro His Asn 225 230 235 240

Asn Arg Leu Phe Ser Thr Lys Asp Gln Asp Asn Asp Gly Ser Thr Ser 245 250 255

Ser Cys Ala Met Gly Tyr His Gly Ala Trp Trp Tyr Ser Gln Cys His 260 265 270

Thr Ser Asn Leu Asn Gly Leu Tyr Leu Arg Gly Pro His Lys Ser Tyr
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Ala Asn Gly Val Asn Trp Lys Ser Trp Arg Gly Tyr Asn Tyr Ser Cys 290 295 300

Lys Val Ser Glu Met Lys Val Arg Leu Ile 305

<210> 123

<211> 102

<212> PRT

<213> Homo sapiens

<400> 123

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Leu Ser Phe Leu Gly Met Ala Trp Ala Leu Gln Ala Ala Asp Thr Cys
20 25 30

Pro Glu Val Lys Met Val Gly Leu Glu Gly Ser Asp Lys Leu Thr Ile 35 40 45

Leu Arg Gly Cys Pro Gly Leu Pro Gly Ala Pro Gly Asp Lys Gly Glu Ala Gly Thr Asn Gly Lys Arg Gly Glu Arg Gly Pro Pro Gly Pro Pro 70 Gly Lys Ala Gly Pro Pro Gly Pro Asn Gly Ala Pro Gly Glu Pro Gln Pro Cys Leu Thr Gly Asp 100 <210> 124 <211> 182 <212> PRT <213> Homo sapiens <400> 124 Met Glu Leu Asp Arg Ala Val Gly Val Leu Gly Ala Ala Thr Leu Leu 5 Leu Ser Phe Leu Gly Met Ala Trp Ala Leu Gln Ala Ala Asp Thr Cys Pro Glu Val Lys Met Val Gly Leu Glu Gly Ser Asp Lys Leu Thr Ile Leu Arg Gly Cys Pro Gly Leu Pro Gly Ala Pro Gly Asp Lys Gly Glu Ala Gly Thr Asn Gly Lys Arg Gly Glu Arg Gly Pro Pro Gly Pro Pro 70 Gly Lys Ala Gly Pro Pro Gly Pro Asn Gly Ala Pro Gly Glu Pro Gln Pro Cys Leu Thr Gly Pro Arg Thr Cys Lys Asp Leu Leu Asp Arg Gly His Phe Leu Ser Gly Trp His Thr Ile Tyr Leu Pro Asp Cys Arg Pro 115 120 Leu Thr Val Leu Cys Asp Met Asp Thr Asp Gly Gly Trp Thr Val 130 135

Ser Val Gly Leu Gly Arg Gly Gln Pro Gly Ser Pro Gly Gln Gln 150 145 Ala Ala His Leu Val Gly Glu His Thr Leu Glu Phe Ser Ile Leu Leu Val Gly Asp Ser Gln Arg 180 <210> 125 275 <211> <212> PRT <213> Homo sapiens <400> 125 Met Glu Leu Asp Arg Ala Val Gly Val Leu Gly Ala Ala Thr Leu Leu Leu Ser Phe Leu Gly Met Ala Trp Ala Leu Gln Ala Ala Asp Thr Cys Pro Gly Glu Arg Gly Pro Pro Gly Pro Pro Gly Lys Ala Gly Pro Pro 35 40 Gly Pro Asn Gly Ala Pro Gly Glu Pro Gln Pro Cys Leu Thr Gly Pro 50 Arg Thr Cys Lys Asp Leu Leu Asp Arg Gly His Phe Leu Ser Gly Trp 80 70 65 His Thr Ile Tyr Leu Pro Asp Cys Arg Pro Leu Thr Val Leu Cys Asp 85 90 Met Asp Thr Asp Gly Gly Gly Trp Thr Val Phe Gln Arg Arg Val Asp 100 105 110 Gly Ser Val Asp Phe Tyr Arg Asp Trp Ala Thr Tyr Lys Gln Gly Phe 120 115 Gly Ser Arg Leu Gly Glu Phe Trp Leu Gly Asn Asp Asn Ile His Ala 130 Leu Thr Ala Gln Gly Thr Ser Glu Leu Arg Val Asp Leu Val Asp Phe 155 150

145

Glu Asp Asn Tyr Gln Phe Ala Lys Tyr Arg Ser Phe Lys Val Ala Asp 170 Glu Ala Glu Lys Tyr Asn Leu Val Leu Gly Ala Phe Val Glu Gly Ser Ala Gly Asp Ser Leu Thr Phe His Asn Asn Gln Ser Phe Ser Thr Lys 200 Asp Gln Asp Asn Asp Leu Asn Thr Gly Asn Cys Ala Val Met Phe Gln 215 · 220 Gly Ala Trp Trp Tyr Lys Asn Cys His Val Ser Asn Leu Asn Gly Arg 230 Tyr Leu Arg Gly Thr His Gly Ser Phe Ala Asn Gly Ile Asn Trp Lys Ser Gly Lys Gly Tyr Asn Tyr Ser Tyr Lys Val Ser Glu Met Lys Val 260 265 Arg Pro Ala 275 <210> 126 <211> 326 <212> PRT <213> Homo sapiens <400> 126 Met Glu Leu Ser Gly Ala Thr Met Ala Arg Gly Leu Ala Val Leu Leu Val Leu Phe Leu His Ile Lys Asn Leu Pro Ala Gln Ala Ala Asp Thr Cys Pro Glu Val Lys Val Val Gly Leu Glu Gly Ser Asp Lys Leu Thr 40 Ile Leu Arg Gly Cys Pro Gly Leu Pro Gly Ala Pro Gly Pro Lys Gly

Glu Ala Gly Val Ile Gly Glu Arg Gly Glu Arg Gly Leu Pro Gly Ala

Pro Gly Lys Ala Gly Pro Val Gly Pro Lys Gly Asp Arg Gly Glu Lys
85 90 95

Gly Met Arg Gly Glu Lys Gly Asp Ala Gly Gln Ser Gln Ser Cys Ala 100 105 110

Thr Gly Pro Arg Asn Cys Lys Asp Leu Leu Asp Arg Gly Tyr Phe Leu 115 120 125

Ser Gly Trp His Thr Ile Tyr Leu Pro Asp Cys Arg Pro Leu Thr Val 130 135 140

Leu Cys Asp Met Asp Thr Asp Gly Gly Gly Trp Thr Val Phe Gln Arg 145 150 155 160

Arg Met Asp Gly Ser Val Asp Phe Tyr Arg Asp Trp Ala Ala Tyr Lys 165 170 175

Gln Gly Phe Gly Ser Gln Leu Gly Glu Phe Trp Leu Gly Asn Asp Asn 180 185 190

Ile His Ala Leu Thr Ala Gln Gly Ser Ser Glu Leu Arg Val Asp Leu 195 200 205

Val Asp Phe Glu Gly Asn His Gln Phe Ala Lys Tyr Lys Ser Phe Lys 210 215 220

Val Ala Asp Glu Ala Glu Lys Tyr Lys Leu Val Leu Gly Ala Phe Val 225 230 235 240

Gly Gly Ser Ala Gly Asn Ser Leu Thr Gly His Asn Asn Asn Phe Phe 245 250 255

Ser Thr Lys Asp Gln Asp Asn Asp Val Ser Ser Ser Asn Cys Ala Glu 260 265 270

Lys Phe Gln Gly Ala Trp Trp Tyr Ala Asp Cys His Ala Ser Asn Leu 275 280 285

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Met Lys Val Arg Pro Ala

<210> 127

<211> 313

<212> PRT

<213> Homo sapiens

<400> 127

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Leu Ser Phe Leu Gly Met Ala Trp Ala Leu Gln Ala Ala Asp Thr Cys
20 25 30

| Asn Asp Ası | n Ile His 180 | Ala Leu | Thr | Ala 185 | Gln | Gly | Thr | Ser | Glu 190 | Leu | Arg |
|--|------------------|----------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Val Asp Let 195 | _ | Phe Glu | 200 | Asn | Tyr | Gln | Phe | Ala 205 | Lys | Tyr | Arg |
| Ser Phe Lys 210 | s Val Ala | Asp Glu 215 | | Glu | Lys | Tyr | Asn 220 | Leu | Val | Leu | Gly |
| Ala Phe Val | . Glu Gly | Ser Ala 230 | Gly | Asp | Ser | Leu 235 | Thr | Phe | His | Asn | Asn 240 |
| Gln Ser Phe | e Ser Thr 245 | | Gln | Asp | Asn 250 | Asp | Leu | Asn | Thr | Gly 255 | Asn |
| Cys Ala Val | Met Phe 260 | Gln Gly | | Trp 265 | Trp | Tyr | Lys | Asn | Cys 270 | His | Val |
| Ser Asn Leu 275 | _ | Arg Tyr | Leu 280 | Arg | Gly | Thr | His | Ġly 285 | Ser | Phe | Ala |
| Asn Gly Ile 290 | Asn Trp | Lys Ser 295 | Gly | Lys | Gly | Tyr | Asn 300 | Tyr | Ser | Tyr | Lys |
| Val Ser Glu 305 | Met Lys | Val Arg 310 | Pro | Ala | | | | | | | |
| <210> 128 <211> 335 <212> PRT <213> Ratt | us norve | gicus | | | | | | | | | |
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| Met Trp Trp | Pro Met 5 | Leu Trp | Ala | | Pro 10 | Val | Leu | Leu | Cys | Leu 15 | Cys |
| Ser Ser Gln | Ala Leu 20 | Gly Gln | | Ser 25 | Gly | Ala | Cys | Pro | Asp 30 | Val | Lys |
| Ile Val Gly 35 | Leu Gly | Ala Gln | Asp 3 | Lys | Val | Ala | | Ile 45 | Gln | Ser | Cys |
| Pro Ser Phe | Pro Gly | Pro Pro | Gly 1 | Pro | Lys | Gly | Glu | Pro | Gly | Ser | Pro |

| Ala 65 | Gly | Arg | Gly | Glu | Arg 70 | Gly | Leu | Gln | Gly | Ser 75 | Pro | Gly | Lys | Met | Gly 80 |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Pro | Pro | Gly | Ser | Lys 85 | Gly | Glu | Pro | Gly | Thr 90 | Met | Gly | Pro | Pro | Gly 95 | Val |
| Lys | Gly | Glu | Lys 100 | Gly | Glu | Arg | Gly | Thr 105 | Ala | Ser | Pro | Leu | Gly 110 | Gln | Lys |
| Glu | Leu | Gly 115 | Asp | Ala | Leu | Cys | Arg 120 | Arg | Gly | Pro | Arg | Ser 125 | Суз | Lys | Asp |
| Leu | Leu 130 | Thr | Arg | Gly | Ile | Phe 135 | Leu | Thr | Gly | Trp | Tyr 140 | Thr | Ile | Tyr | Leu |
| Pro 145 | Asp | Cys | Arg | Pro | Leu 150 | Thr | Val | Leu | Cys | Asp 155 | Met | Asp | Val | Asp | Gly 160 |
| Gly | Gly | Trp | Thr | Val 165 | Phe | Gln | Arg | Arg | Val 170 | Asp | Gly | Ser | Ile | Asn 175 | Phe |
| Tyr | Arg | Asp | Trp 180 | Asp | Ser | Tyr | Lys | Arg 185 | Gly | Phe | Gly | Asn | Leu 190 | Gly | Thr |
| Glu | Phe | Trp 195 | Leu | Gly | Asn | Asp | Tyr 200 | Leu | His | Leu | Leu | Thr 205 | Ala | Asn | Gly |
| Asn | Gln 210 | Glu | Leu | Arg | Val | Asp 215 | Leu | Arg | Glu | Phe | Gln 220 | Gly | Gln | Thr | Ser |
| Phe 225 | Ala | Lys | Tyr | Ser | Ser 230 | Phe | Gln | Val | Ser | Gly 235 | Glu | Gln | Glu | Lys | Tyr 240 |
| Lys | Leu | Thr | Leu | Gly 245 | Gln | Phe | Leu | Glu | Gly 250 | Thr | Ala | Gly | Asp | Ser 255 | Leu |
| Thr | Lys | His | Asn 260 | Asn | Met | Ala | Phe | Ser 265 | Thr | His | Asp | Gln | Asp 270 | Asn | Asp |

Thr Asn Gly Gly Lys Asn Cys Ala Ala Leu Phe His Gly Ala Trp Trp 275 280 285

Tyr His Asp Cys His Gln Ser Asn Leu Asn Gly Arg Tyr Leu Pro Gly 300 290 Ser His Glu Ser Tyr Ala Asp Gly Ile Asn Trp Leu Ser Gly Arg Gly 310 His Arg Tyr Ser Tyr Lys Val Ala Glu Met Lys Ile Arg Ala Ser 330 <210> 129 <211> 313 <212> PRT <213> Homo sapiens <400> 129 Met Glu Leu Asp Arg Ala Val Gly Val Leu Gly Ala Ala Thr Leu Leu 10 Leu Ser Phe Leu Gly Met Ala Trp Ala Leu Gln Ala Asp Thr Cys 25 20 Pro Glu Val Lys Met Val Gly Leu Glu Gly Ser Asp Lys Leu Thr Ile 35 40 45 Leu Arg Gly Cys Pro Gly Leu Pro Gly Ala Pro Gly Asp Lys Gly Glu 50 55 60 Ala Gly Thr Asn Gly Lys Arg Gly Glu Arg Gly Pro Pro Gly Pro Pro 70 75 Gly Lys Ala Gly Pro Pro Gly Pro Asn Gly Ala Pro Gly Glu Pro Gln Pro Cys Leu Thr Gly Pro Arg Thr Cys Lys Asp Leu Leu Asp Arg Gly 100 His Phe Leu Ser Gly Trp His Thr Ile Tyr Leu Pro Asp Cys Arg Pro 115 Leu Thr Val Leu Cys Asp Met Asp Thr Asp Gly Gly Trp Thr Val 130 Phe Gln Arg Arg Val Asp Gly Ser Val Asp Phe Tyr Arg Asp Trp Ala 155 145 150

Thr Tyr Lys Gln Gly Phe Gly Ser Arg Leu Gly Glu Phe Trp Leu Gly 170 Asn Asp Asn Ile His Ala Leu Thr Ala Gln Gly Thr Ser Glu Leu Arg 180 185 Val Asp Leu Val Asp Phe Glu Asp Asn Tyr Gln Phe Ala Lys Tyr Arg 200 Ser Phe Lys Val Ala Asp Glu Ala Glu Lys Tyr Asn Leu Val Leu Gly Ala Phe Val Glu Gly Ser Ala Gly Asp Ser Leu Thr Phe His Asn Asn 230 Gln Ser Phe Ser Thr Lys Asp Gln Asp Asn Asp Leu Asn Thr Gly Asn 245 250 Cys Ala Val Met Phe Gln Gly Ala Trp Trp Tyr Lys Asn Cys His Val 260 265 Ser Asn Leu Asn Gly Arg Tyr Leu Arg Gly Thr His Gly Ser Phe Ala 280 275 Asn Gly Ile Asn Trp Lys Ser Gly Lys Gly Tyr Asn Tyr Ser Tyr Lys 300 290 295 Val Ser Glu Met Lys Val Arg Pro Ala 305 310 <210> 130 <211> 306 <212> PRT <213> Mus musculus <400> 130 Leu Gly Ser Ala Ala Leu Phe Val Leu Thr Leu Thr Val His Ala Ala Gly Thr Cys Pro Glu Leu Lys Val Leu Asp Leu Glu Gly Tyr Lys Gln 25 Leu Thr Ile Leu Gln Gly Cys Pro Gly Leu Pro Gly Ala Ala Gly Pro

| Lys | Gly 50 | Glu | Ala | Gly | Ala | Lys 55 | Gly | Asp | Arg | Gly | Glu 60 | Ser | Gly | Leu | Pro | |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--|
| Gly 65 | Ile | Pro | Gly | Lys | Glu 70 | Gly | Pro | Thr | Gly | Pro 75 | Lys | Gly | Asn | Gln | Gly 80 | |
| Glu | Lys | Gly | Ile | Arg 85 | Gly | Glu | Lys | Gly | Asp 90 | Ser | Gly | Pro | Ser | Gln 95 | Ser | |
| Cys | Ala | Thr | Gly 100 | Pro | Arg | Thr | Cys | Lys 105 | Glu | Leu | Leu | Thr | Gln 110 | Gly | His | |
| Phe | Leu | Thr 115 | Gly | Trp | Tyr | Thr | Ile 120 | Tyr | Leu | Pro | Asp | Cys 125 | Arg | Pro | Met | |
| Thr | Val 130 | Leu | Cys | Asp | Met | Asp 135 | Thr | Asp | Gly | Gly | Gly 140 | Trp | Thr | Val | Phe | |
| Gln 145 | Arg | Arg | Leu | Asp | Gly 150 | Ser | Val | Asp | Phe | Phe 155 | Arg | Asp | Trp | Thr | Ser 160 | |
| Tyr | Lys | Arg | Gly | Phe 165 | Gly | Ser | Gln | Leu | Gly 170 | Glu | Phe | Trp | Leu | Gly 175 | Asn | |
| Asp | Asn | Ile | His 180 | Ala | Leu | Thr | Thr | Gln 185 | Gly | Thr | Ser | Glu | Leu 190 | Arg | Val | |
| Asp | Leu | Ser 195 | Asp | Phe | Glu | Gly | Lys 200 | His | Asp | Phe | Ala | Lys 205 | Tyr | Ser | Ser | |
| Phe | Gln 210 | Ile | Gln | Gly | Glu | Ala 215 | Glu | Lys | Tyr | Lys | Leu 220 | Ile | Leu | Gly | Asn | |
| Phe 225 | Leu | Gly | Gly | Gly | Ala 230 | Gly | Asp | Ser | Leu | Thr 235 | Pro | His | Asn | Asn | Arg 240 | |
| Leu | Phe | Ser | Thr | Lys 245 | Asp | Gln | Asp | Asn | Asp 250 | Gly | Ser | Thr | Ser | Ser 255 | Cys | |

Ala Met Gly Tyr His Gly Ala Trp Trp Tyr Ser Gln Cys His Thr Ser 260 265 270

Asn Leu Asn Gly Leu Tyr Leu Arg Gly Pro His Lys Ser Tyr Ala Asn 280 Gly Val Asn Trp Lys Ser Trp Arg Gly Tyr Asn Tyr Ser Cys Lys Val Ser Glu 305 <210> 131 <211> 334 <212> PRT <213> Mus musculus <400> 131 Met Gln Trp Pro Thr Leu Trp Ala Phe Ser Gly Leu Leu Cys Leu Cys Pro Ser Gln Ala Leu Gly Gln Glu Arg Gly Ala Cys Pro Asp Val Lys Val Val Gly Leu Gly Ala Gln Asp Lys Val Val Ile Gln Ser Cys 35 40 Pro Gly Phe Pro Gly Pro Pro Gly Pro Lys Gly Glu Pro Gly Ser Pro 50 55 Ala Gly Arg Gly Glu Arg Gly Phe Gln Gly Ser Pro Gly Lys Met Gly 70 65 Pro Ala Gly Ser Lys Gly Glu Pro Gly Thr Met Gly Pro Pro Gly Val 85 Lys Gly Glu Lys Gly Asp Thr Gly Ala Ala Pro Ser Leu Gly Glu Lys 100 Glu Leu Gly Asp Thr Leu Cys Gln Arg Gly Pro Arg Ser Cys Lys Asp 125 115 Leu Leu Thr Arg Gly Ile Phe Leu Thr Gly Trp Tyr Thr Ile His Leu 130 135 Pro Asp Cys Arg Pro Leu Thr Val Leu Cys Asp Met Asp Val Asp Gly 150 155 145

| Gly Gly Trp Thr Val Phe Gln Arg Arg Val Asp Gly 9 | Ser Ile Asp Phe 175 |
|--|------------------------|
| Phe Arg Asp Trp Asp Ser Tyr Lys Arg Gly Phe Gly A | Asn Leu Gly Thr 190 |
| Glu Phe Trp Leu Gly Asn Asp Tyr Leu His Leu Leu 5 | Thr Ala Asn Gly 205 |
| Asn Gln Glu Leu Arg Val Asp Leu Gln Asp Phe Gln C 210 215 220 | Gly Lys Gly Ser |
| Tyr Ala Lys Tyr Ser Ser Phe Gln Val Ser Glu Glu C 225 230 235 | Gln Glu Lys Tyr 240 |
| Lys Leu Thr Leu Gly Gln Phe Leu Glu Gly Thr Ala G 245 250 | Gly Asp Ser Leu 255 |
| Thr Lys His Asn Asn Met Ser Phe Thr Thr His Asp G 260 265 | Gln Asp Asn Asp 270 |
| Ala Asn Ser Met Asn Cys Ala Ala Leu Phe His Gly A 275 280 2 | Ala Trp Trp Tyr 285 |
| His Asn Cys His Gln Ser Asn Leu Asn Gly Arg Tyr L 290 295 300 | Leu Ser Gly Ser |
| His Glu Ser Tyr Ala Asp Gly Ile Asn Trp Gly Thr G 305 310 315 | Sly Gln Gly His 320 |
| His Tyr Ser Tyr Lys Val Ala Glu Met Lys Ile Arg A 325 330 | ala Ser |
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| Glu Leu Thr Leu His Ala Ala Asp Thr Cys Pro Glu V | al Lys Val Leu |

30

Asp Leu Glu Gly Ser Asn Lys Leu Thr Ile Leu Gln Gly Cys Pro Gly 35 40 45

Leu Pro Gly Ala Leu Gly Pro Lys Gly Glu Ala Gly Ala Lys Gly Asp 50 55 60

Arg Gly Glu Ser Gly Leu Pro Gly His Pro Gly Lys Ala Gly Pro Thr 65 70 75 80

Gly Pro Lys Gly Asp Arg Gly Glu Lys Gly Val Arg Gly Glu Lys Gly 85 90 95

Asp Thr Gly Pro Ser Gln Ser Cys Ala Thr Gly Pro Arg Thr Cys Lys
100 105 110

Glu Leu Leu Thr Arg Gly Tyr Phe Leu Thr Gly Trp Tyr Thr Ile Tyr
115 120 125

Leu Pro Asp Cys Arg Pro Leu Thr Val Leu Cys Asp Met Asp Thr Asp 130 135 140

Gly Gly Gly Trp Thr Val Phe Gln Arg Arg Ile Asp Gly Thr Val Asp 145 150 155 160

Phe Phe Arg Asp Trp Thr Ser Tyr Lys Gln Gly Phe Gly Ser Gln Leu 165 170 175

Gly Glu Phe Trp Leu Gly Asn Asp Asn Ile His Ala Leu Thr Thr Gln 180 185 190

Gly Thr Asn Glu Leu Arg Val Asp Leu Ala Asp Phe Asp Gly Asn His 195 200 205

Asp Phe Ala Lys Tyr Ser Ser Phe Gln Ile Gln Gly Glu Ala Glu Lys 210 215 220

Tyr Lys Leu Ile Leu Gly Asn Phe Leu Gly Gly Gly Ala Gly Asp Ser 225 230 235 240

Leu Thr Ser Gln Asn Asn Met Leu Phe Ser Thr Lys Asp Gln Asp Asn 245 250 255

Asp Gln Gly Ser Ser Asn Cys Ala Val Arg Tyr His Gly Ala Trp Trp 260 265 Tyr Ser Asp Cys His Thr Ser Asn Leu Asn Gly Leu Tyr Leu Arg Gly 280 Leu His Lys Ser Tyr Ala Asn Gly Val Asn Trp Lys Ser Trp Lys Gly Tyr Asn Tyr Ser Tyr Lys Val Ser Glu Met Lys Val Arg Leu Ile 310 <210> 133 <211> 334 <212> PRT <213> Mus musculus <400> 133 Met Gln Trp Pro Thr Leu Trp Ala Phe Ser Gly Leu Leu Cys Leu Cys Pro Ser Gln Ala Leu Gly Gln Glu Arg Gly Ala Cys Pro Asp Val Lys 20 Val Val Gly Leu Gly Ala Gln Asp Lys Val Val Val Ile Gln Ser Cys 35 Pro Gly Phe Pro Gly Pro Pro Gly Pro Lys Gly Glu Pro Gly Ser Pro 55 50 Ala Gly Arg Gly Glu Arg Gly Phe Gln Gly Ser Pro Gly Lys Met Gly 70 75 80 Pro Ala Gly Ser Lys Gly Glu Pro Gly Thr Met Gly Pro Pro Gly Val 90 95 Lys Gly Glu Lys Gly Asp Thr Gly Ala Ala Pro Ser Leu Gly Glu Lys 105 100 Glu Leu Gly Asp Thr Leu Cys Gln Arg Gly Pro Arg Ser Cys Lys Asp 115 Leu Leu Thr Arg Gly Ile Phe Leu Thr Gly Trp Tyr Thr Ile His Leu 130

| Pro 145 | Asp | Cys | Arg | Pro | Leu 150 | Thr | Val | Leu | Cys | Asp 155 | Met | Asp | Val | Asp | Gly 160 |
|--------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Gly | Gly | Trp | Thr | Val 165 | Phe | Gln | Arg | Arg | Val 170 | Asp | Gly | Ser | Ile | Asp 175 | Phe |
| Phe | Arg | Asp | Trp 180 | Asp | Ser | Tyr | Lys | Arg 185 | Gly | Phe | Gly | Asn | Leu 190 | Gly | Thr |
| Glu | Phe | Trp 195 | Leu | Gly | Asn | Asp | Tyr 200 | Leu | His | Leu | Leu | Thr 205 | Ala | Asn | Gly |
| Asn | Gln 210 | Glu | Leu | Arg | Val | Asp 215 | Leu | Gln | Asp | Phe | Gln 220 | Gly | Lys | Gly | Ser |
| Tyr 225 | Ala | Lys | Tyr | Ser | Ser 230 | Phe | Gln | Val | Ser | Glu 235 | Glu | Gln | Glu | Lys | Tyr 240 |
| Lys | Leu | Thr | Leu | Gly 245 | Gln | Phe | Leu | Glu | Gly 250 | Thr | Ala | Gly | Asp | Ser 255 | Leu |
| Thr | Lys | His | Asn 260 | Asn | Met | Ser | Phe | Thr 265 | Thr | His | Asp | Gln | Asp 270 | Asn | Asp |
| Ala | Asn | Ser 275 | Met | Asn | Cys | Ala | Ala 280 | Leu | Phe | His | Gly | Ala 285 | Trp | Trp | Tyr |
| His | Asn 290 | Cys | His | Gln | Ser | Asn 295 | Leu | Asn | Gly | Arg | Tyr 300 | Leu | Ser | Gly | Ser |
| His 305 | Glu | Ser | Tyr | Ala | Asp 310 | Gly | Ile | Asn | Trp | Gly 315 | Thr | Gly | Gln | Gly | His 320 |
| His | Tyr | Ser | Tyr | Lys 325 | Val | Ala | Glu | Met | Lys 330 | Ile | Arg | Ala | Ser | | |
| <210 <211 | | .34 26 | | | | | | | | | | | | | |
| <212 <213 | | RT Iomo | sapi | ens | | | | | | ı. | | | | | |
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Cys Pro Glu Val Lys Val Val Gly Leu Glu Gly Ser Asp Lys Leu Thr 35 40 45

Ile Leu Arg Gly Cys Pro Gly Leu Pro Gly Ala Pro Gly Pro Lys Gly
50 55 60

Glu Ala Gly Val Ile Gly Glu Arg Gly Glu Arg Gly Leu Pro Gly Ala 65 70 75 80

Pro Gly Lys Ala Gly Pro Val Gly Pro Lys Gly Asp Arg Gly Glu Lys 85 90 95

Gly Met Arg Gly Glu Lys Gly Asp Ala Gly Gln Ser Gln Ser Cys Ala 100 105 110

Thr Gly Pro Arg Asn Cys Lys Asp Leu Leu Asp Arg Gly Tyr Phe Leu 115 120 125

Ser Gly Trp His Asn Ile Tyr Leu Pro Asp Cys Arg Pro Leu Thr Val 130 135 140

Leu Cys Asp Met Asp Thr Asp Gly Gly Gly Trp Thr Val Phe Gln Arg 145 150 155 160

Arg Met Asp Gly Ser Val Asp Phe Tyr Arg Asp Trp Ala Ala Tyr Lys 165 170 175

Gln Gly Phe Gly Ser Gln Leu Gly Glu Phe Trp Leu Gly Asn Asp Asn 180 185 190

Ile His Ala Leu Thr Ala Gln Gly Ser Ser Glu Leu Arg Val Asp Leu 195 200 205

Val Asp Phe Glu Gly Asn His Gln Phe Ala Lys Tyr Lys Ser Phe Lys 210 215 220

Val Ala Asp Glu Ala Glu Lys Tyr Lys Leu Val Leu Gly Ala Phe Val 225 230 235 240

Gly Gly Ser Ala Gly Asn Ser Leu Thr Gly His Asn Asn Asn Phe Phe 250 245 Ser Thr Lys Asp Gln Asp Asn Asp Val Ser Ser Ser Asn Cys Ala Glu 260 265 270 Lys Phe Gln Gly Ala Trp Trp Tyr Ala Asp Cys His Ala Ser Ser Leu 275 Asn Gly Leu Tyr Leu Met Gly Pro His Glu Ser Tyr Ala Asn Gly Ile 295 290 Asn Trp Ser Ala Ala Lys Gly Tyr Lys Tyr Ser Tyr Lys Val Ser Glu 310 315 Met Lys Val Arg Pro Ala <210> 135 <211> 323 <212> PRT <213> Sus scrofa <400> 135 Met Asp Thr Arg Gly Val Ala Ala Ala Met Arg Pro Leu Val Leu Leu 5 10 Val Ala Phe Leu Cys Thr Ala Ala Pro Ala Leu Asp Thr Cys Pro Glu 20 25 Val Lys Val Val Gly Leu Glu Gly Ser Asp Lys Leu Ser Ile Leu Arg 35 40 Gly Cys Pro Gly Leu Pro Gly Ala Ala Gly Pro Lys Gly Glu Ala Gly 50 55 Ala Ser Gly Pro Lys Gly Gly Gln Gly Pro Pro Gly Ala Pro Gly Glu 70 65 Pro Gly Pro Pro Gly Pro Lys Gly Asp Arg Gly Glu Lys Gly Glu Pro 90 85 Gly Pro Lys Gly Glu Ser Trp Glu Thr Glu Gln Cys Leu Thr Gly Pro 110 100

| Arg | Thr | Cys 115 | Lys | Glu | Leu | Leu | Thr 120 | Arg | Gly | His | Ile | Leu 125 | Ser | Gly | Trp |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| His | Thr 130 | Ile | Tyr | Leu | Pro | Asp 135 | Cys | Gln | Pro | Leu | Thr 140 | Val | Leu | Cys | Asp |
| Met 145 | Asp | Thr | Asp | Gly | Gly 150 | Gly | Trp | Thr | Val | Phe 155 | Gln | Arg | Arg | Ser | Asp 160 |
| Gly | Ser | Val | Asp | Phe 165 | Tyr | Arg | Asp | Trp | Ala 170 | Ala | Tyr | Lys | Arg | Gly 175 | Phe |
| - | | | 180 | | | | | 185 | | | | | 190 | His | |
| Leu | Thr | Ala 195 | Gln | Gly | Thr | Asn | Glu 200 | Leu | Arg | Val | Asp | Leu 205 | Val | Asp | Phe |
| Glu | Gly 210 | Asn | His | Gln | Phe | Ala 215 | Lys | Tyr | Arg | Ser | Phe 220 | Gln | Val | Ala | Asp |
| 225 | | | _ | - | 230 | | | | | 235 | | | | Gly | 240 |
| Ala | Gly | Asp | Ser | Leu 245 | Thr | Ser | His | Asn | Asn 250 | Ser | Leu | Phe | Thr | Thr 255 | Lys |
| Asp | Gln | Asp | Asn 260 | Asp | Gln | Tyr | Ala | Ser 265 | Asn | Cys | Ala | Val | Leu 270 | Tyr | Gln |
| Gly | Ala | Trp 275 | Trp | Tyr | Asn | Ser | Cys 280 | His | Val | Ser | Asn | Leu 285 | Asn | Gly | Arg |
| Tyr | Leu 290 | Gly | Gly | Ser | His | Gly 295 | Ser | Phe | Ala | Asn | Gly 300 | Val | Asn | Trp | Ser |
| Ser 305 | Gly | Lys | Gly | Tyr | Asn 310 | Tyr | Ser | Tyr | Lys | Val 315 | Ser | Glu | Met | Lys | Phe 320 |

Arg Ala Thr

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Gly Glu Phe Trp Leu Gly Asn Asp Asn Ile His Ala Leu Thr Ala Gln

Gly Ser Ser Glu Leu Arg Val Asp Leu Val Asp Phe Glu Gly Asn His
195 200 205

185

180

| 210 215 220 | Glu Lys |
|---|-------------------------------|
| Tyr Lys Leu Val Leu Gly Ala Phe Val Gly Gly Ser Ala Gly 225 230 235 | Asn Ser 240 |
| Leu Thr Gly His Asn Asn Asn Phe Phe Ser Thr Lys Asp Gln 2 245 250 | Asp Asn 255 |
| Asp Val Ser Ser Ser Asn Cys Ala Glu Lys Phe Gln Gly Ala 7 260 265 270 | Trp Trp |
| Tyr Ala Asp Cys His Ala Ser Asn Leu Asn Gly Leu Tyr Leu I 275 280 285 | Met Gly |
| Pro His Glu Ser Tyr Ala Asn Gly Ile Asn Trp Ser Ala Ala 1 290 295 300 | Lys Gly |
| Tyr Lys Tyr Ser Tyr Lys Val Ser Glu Met Lys Val Arg Pro 2 | Ala |
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| <pre><211> 187 <212> PRT <213> Drosophila melanogaster <400> 137 Met Lys Ser Cys Phe Phe Val Leu Phe Leu Trp Thr Leu Leu I 1</pre> | 15 Asn Gly |
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| <pre> <211> 187 <212> PRT <213> Drosophila melanogaster <400> 137 Met Lys Ser Cys Phe Phe Val Leu Phe Leu Trp Thr Leu Leu I 1</pre> | Asn Gly Thr Gln Leu Asp |

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Pro Gly Ala Thr Val Tyr Ala His Phe Asp Asp Phe Gln Val Asp Ser 115 120 125

Glu Thr Glu Leu Tyr Lys Leu Glu Arg Val Gly Lys Tyr Ser Gly Thr 130 135 140

Ala Gly Asp Ser Leu Arg Tyr His Ile Asn Lys Arg Phe Ser Thr Phe 145 150 155 160

Asp Arg Asp Asn Asp Glu Ser Ser Lys Asn Cys Ala Ala Glu His Gly 165 170 175

Gly Gly Trp Trp Phe His Ser Cys Leu Ser Arg 180 185